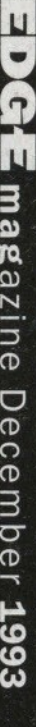


Rise Of The Robots from Mirage – a graphically outstanding fast action beat 'em up. Each body part was modelled in *3D Studio* and is stored as independent sprites. The limbs are linked and animated to give life to each 3D mechanoid

EDGE





The future of the videogame is pretty straightforward

There are two routes that the videogame can take: 2D images dragged from ROM or CD; and the 3D environment generated in real time.

While the 2D route encompasses real 24bit images, full-motion video, bluescreen, high-definition rendered graphics and so on, you can only explore what is on the disc; you can only visit the places that the artist or camera has visited before you.

3D environments are still visualised in a more basic fashion, but once the world and its contents have been described mathematically, the player can go anywhere he or she wants; there are an infinite number of views to be had.

As the technology advances, so those basic vector graphics give way to polygons with light sourced shading, texture mapping, transparency and so on. And the ultimate experience is to actually wander around that virtual world and interact with it in three dimensions, using stereo eyephones to see the world and motion sensors to track your position.

Screen-based 2D games are a dead end; there is simply no comparison to an immersive 3D experience. It's the difference between being the passenger in a car and actually driving it.

All of the major electronics corporations are researching VR for entertainment, and with companies like Sony, Sega, Namco and Evans & Sutherland at the forefront, you can be sure that VR as a form of entertainment is no longer just the domain of science fiction.

While researching this issue's VR feature, **Edge** discovered some surprising facts and saw some stunning images. For a glimpse of the future, put on some shades and turn to page 52...

The **future** is almost here...

inside EDGE issue three

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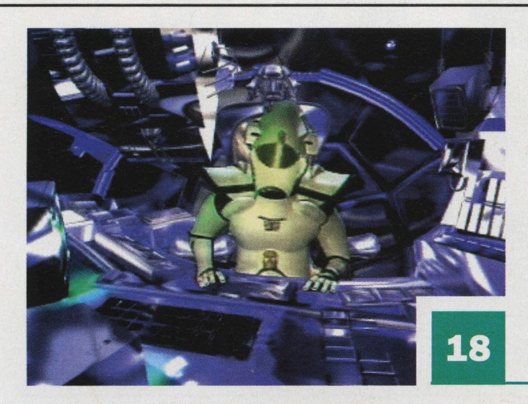
Typography (Adobe®)

ITC Franklin Gothic/**Heavy**
Gill Sans/**Bold**
Bell Gothic light/**Black**

'We're developing the early stages of a technology that can allow a person to psychologically move from being in the real world to being totally immersed in a virtual world... The morals of doing that, what it's used for, really aren't questions for us to answer. I'm not a lawyer, I'm not a politician, I'm not a psychologist, I'm not a social worker. We're engineers, and there is a clear task in front of us which we must execute as quickly as possible. And in doing so provide what we believe to be a totally unique experience...'
Dr Jon Waldern, Virtuality Group (source: **Edge** interview)

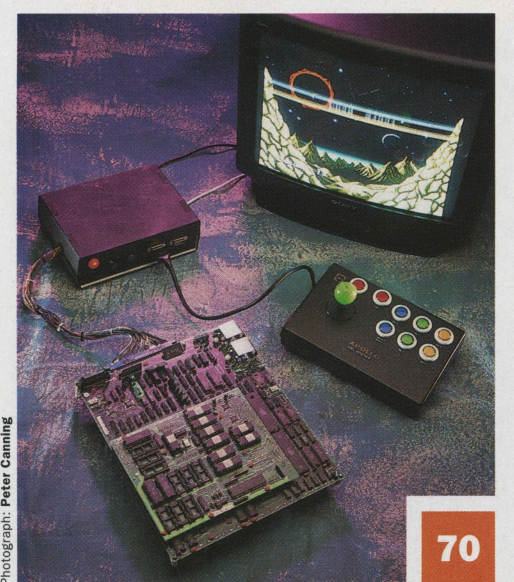


insideview



Prescreen

The best games in development around the world. **Edge** profiles newies for CD-i, 3DO, PC, Amiga, Macintosh, SNES, and others. The pages to watch for all the latest on the games scene, including (left) the CD-i action adventure, *Kether*



Photograph: Peter Canning

Supergun

The Supergun is a simple piece of kit that lets you plug in and play arcade boards on a standard TV. Sounds expensive? Well, believe it or not, you could have the whole thing up and running for only £200. And some of the arcade boards going cheap are genuine classics. **Edge** explores the kit and shows you the best games around for the Supergun…

102

Photograph: Adrian Ford

Core Design

Competition winner, **Ian Gray**, meets and quizzes Mega CD *Thunderhawk* programmers, Core Design, using questions sent in by **Edge** readers. We report back on how the encounter went… And setup a new interview

Trip Hawkins' **dream machine** lands – quietly, **page 6...** Panasonic's **3DO in UK**, **page 8...** PCs get **MPEG F**ull-**M**otion **V**ideo, **page 11...** Atari **Jaguar** previewed, **page 12...** International **L**eisure **I**ndustry **W**eek show, **page 14...** **Nintendo** to finally abandon CD-ROM? **page 15...**



The very latest **news** from across the entire world of videogaming

The 3DO dream machine arrives

Trip Hawkins, The 3DO Company and Panasonic have defied their critics, launching the first 3DO multiplayer on October 4 as promised. But is it any good, and what of the UK launch next year?



Photograph: Peter Canning

At last: the Panasonic FZ-1 3DO Interactive Multiplayer finally becomes reality. Edge had one of the very first units into the UK, and we gave it a thorough seeing to...

On October 4 the initial batch of Panasonic's FZ-1 units hit shelves across the US, most going into software stores like Babbages, Electronic Boutique and Software Etc. Most stores got just two or three units, and in the week prior to launch, many of the computer and console retail outlets **Edge** questioned knew nothing about 3DO, let alone when – or if – they would be stocking it. Even American games magazines have had to buy their own machines, because Panasonic haven't got enough machines to go around.

Our 3DO was purchased from Software Etc, but there was no point-of-sale material, no demonstration stand, no software – and →

So you want a 3DO?

There are already 3DO systems being bought on grey import. Companies including Raven Games, Dream Machines, Console Concepts, ACE and Krazy Konsoles are handling the machine, although stocks are low.

Current going price for an NTSC machine will vary from £700 to £850 which Krazy Konsoles are charging for specially ordered FZ-1s.

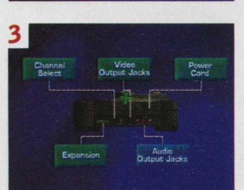
So far no-one has managed to pull a Scart signal off the machine, allowing it to play on PAL TVs, however Edge has been assured that it is possible, so watch the mail order ads.

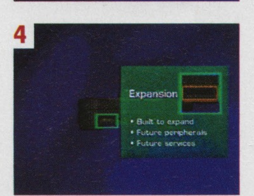
And if the UK 3DO is a bodged NTSC version, like the so-called PAL SNES and Mega Drive, you can expect the grey import market to take an upswing...

Handling the Real Machine

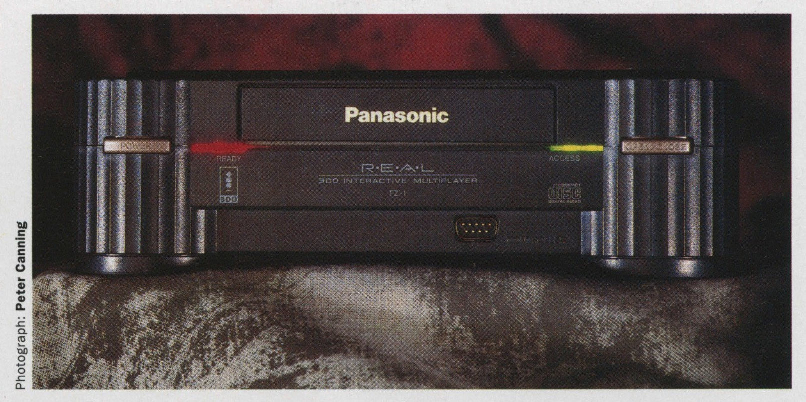
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1. The FZ-1 comes with a sampler CD, which is split into three sections. 'The Real Machine' is an interactive demo of the machine and its ports
2. A smart 3D image of the FZ-1 rotates under joypad control
3. The viewer can stop the machine on any side, at which point annotated panels pop up
4. Click on a panel and a rich American voice describes that particular facet of the machine. Sadly, the demo goes into very little detail



Photograph: Peter Canning

The front of Panasonic's 3DO unit features the CD tray, power button, eject button and joypad port. A red light signifies the machine is on; green means accessing data

only one boxed 3DO sitting quietly behind the 'Pay Here' counter.

Obviously 3DO and Panasonic are bullish about facts and figures: **Bill Pritchard**, Panasonic's main PR man, said 'Initial sales over the first few weeks have gone very briskly; it's sold out very quickly in certain stores and reaction has been very, very positive.

'In terms of units shipped, that's proprietary and competitive information, that we'd rather keep it to ourselves. The initial shipout was to 1,200 or 1,500 individual store fronts, and we aim to be delivering to 2,000 or more stores by the Christmas period.'

So what about peripherals? 'We're currently offering an additional controller, the FZ-JP1X, for around $40,' proffers Bill, 'and in Spring of next year, we'll be introducing our FMV cartridge, which I believe conforms to the MPEG1 standard.'

'Initial sales over the first the few weeks have gone very briskly; it's sold out very quickly in certain stores and in general the reaction has been very, very positive'

Bill Pritchard, Panasonic, US

Of course, a machine of this calibre is a software-hungry beast: 'I don't know specifics,' says Bill, 'but we're looking at 18 or 20 titles within a week or two after launch. Sanctuary Woods' *It's A Bird's Life* delivered a week or two ago, and there are additional titles that will be available this month. By the main Christmas selling period up to 20 or 25 titles should be available.'

Considering **Trip Hawkins**, 3DO's boss, keeps reminding people that there are over 350 software licencees, two titles onsale at launch is pretty dismal.

So what do you get for your $699 (roughly £420)? Well, you get the Panasonic FZ-1 REAL 3DO Interactive Multiplayer and cables, joypad, a 3DO demo disc, a Kodak Photo CD disc and Crystal Dynamics' racing game, *Crash 'n Burn*.

And not only has 3DO met its deadline,

Continued next page

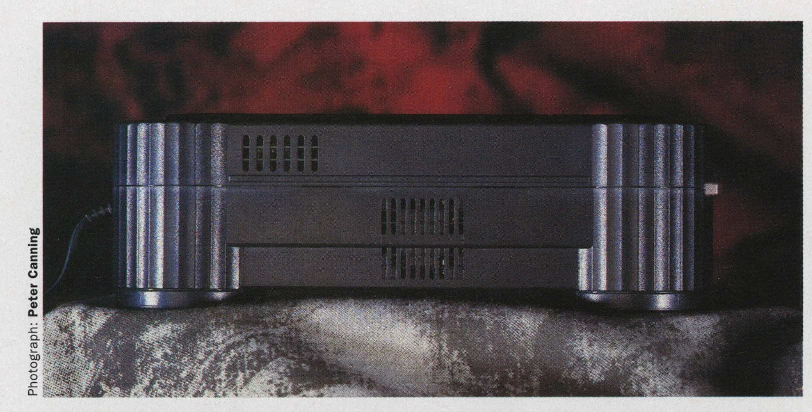
When is it?

It's your first chance to see the 3DO – and brand new Atari Jaguar... It's when you can expect to see Philips' CD-i FMV games up and running, and all the latest in the future of videogaming. It's your chance to decide for yourself...



Photograph: Peter Canning

Far more interesting is the FZ-1's rear. From left to right: expansion port, channel switch, RF port, S-VHS port, composite video port, audio (r and l) ports, power cable


Photograph: Peter Canning

The left side of the FZ-1 has a mysterious series of holes in a vent arrangement. It's believed that these enable fan-assisted air to circulate through the machine

it is...

The Edge Experience at the Future Entertainment Show. Exclusive at the FES, Edge will be presenting all the very latest in the world of videogaming, and giving first looks at new CD technologies... Turn to page 93.

← **Edge** is happy to report that it's a very smart piece of kit. Build quality is good – certainly as good as any other Panasonic branded hardware. Both casing and internals are decent quality and even the joypad comes with a sensibly long lead – roughly 8ft. The only worry is the slideout CD tray which is fragile and wobbly: prime suspect for an early repair bill.

But how does it perform? Well, without the aid of any hidden Apple Mac Quadras, our 3DO machine loaded and manipulated Kodak Photo CDs with alarming speed. The rotation, mirroring and zoom functions happen realtime with the minimum of fuss.

CD audio sounds quite punchy and is accompanied by some spectacular 24bit colour cycling and pattern-making in time to the music.

And then, without swapping machines or plugging in extra chips, the FZ-1 quite happily loaded in the 3DO demo disk. Fine. Next up was *Crash 'n Burn* (reviewed on page 78). This visually impressive game loaded and ran, but before going we went to press the game crashed. Over two day's solid play, the game crashed four times.

Not a good sign, but there's probably some debugging of hardware and software to be done over the coming months. Hopefully, the UK PAL system will be completely bug-free.

'My motto is hit them where it hurts. If they want a price war, that kind of stuff really doesn't worry me. For us to grab attention, how about if we launched 3DO at £299?' Philip Kipling, 3DO Project Leader, Panasonic

The 3DO experience will first appear in the UK under the guidance of Panasonic, and the man chosen to make it all happen is **Philip Kipling**.

In a company noted for its conservative 'make no waves' executives, Panasonic's 3DO project leader certainly speaks his mind. The reason behind his combative manner may be down to the seven years' time he put in for Panasonic's Business Systems division. Kipling describes this as a 'relatively young' division within the austere →


Photograph: Peter Canning

The right side of the FZ-1 conceals the AV Expansion slot. Early next year, with the aid of a plug-in FMV module, the machine will be able to play Digital Videos

Starfox II in progress

Continued

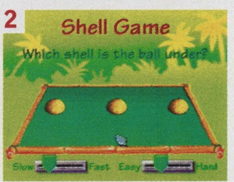
News has reached Edge that *Starfox II* is well into production and being coded in the UK by the same Argonaut team that did the original.

The sequel to the SNES Super FX game features twoplayer, split-screen action and so far looks to be a similar sort of thing to the original. However, *Starfox II* runs on the SFXII chip, which is what Argonaut intended the SFX chip to be but Nintendo balked at the expense. It's hoped that by the time *Starfox II* is completed, the price of the SFXII chip will have dropped accordingly. *Starfox II* should be the big game of next summer.

Argonaut are also working on an arcade action game called *Citadel* – rumoured to be best SNES game so far – and on Virgin's first 3DO title, a stunning adventure RPG. More news as and when...

The 3DO sampler CD

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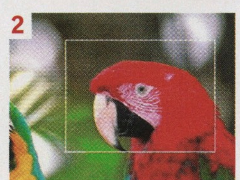

5


6


1. The FZ-1 happily drags a whole episode of the Batman cartoon off CD
2. The Shell Game from *Shelley Duvall's 'It's a Bird's Life'*. Spot the ball after the shells have been shuffled
3. A snippet of animated Thumbelina, again dragged off CD
4. And likewise with the more humourous 2 Stupid Dogs
5. The impressive, but too-fast-for-its-own-good *Road Race* game
6. Colour Echo is a glorious 24bit colour pattern maker. Turn on, tune in, drop out...

Kodak photo CDs on 3DO

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1. The original picture
2. Choose the zoom area
3. And zoom in
4. Select another area
5. And zoom in even further
6. Mirroring is almost instant. This shot catches it in mid-mirror
7. Rotation is similarly rapid. Again, mid-rotate

← Panasonic/Matsushita entity, and one that has been brought up in the rollercoaster ride of the UK's personal computer industry.

So when **Edge** enquired as to the likely price for the FZ-1 when it launches here in the second quarter of 94 (our bet is on April) we didn't get the usual 'no comment'.

'We haven't set a retail price in the UK yet,' he begins. 'It's $699 in the US; we'll make our decision depending on how many they sell and how Sega and Nintendo react to that. And undoubtedly they will respond.'

And he continues: 'My motto is hit them where it hurts. If they want a price war, as the man from the computer industry where price war is an everyday thing, that kind of stuff doesn't worry me. For us to grab attention, how about 3DO at £299? – that *would* shock the pants off Sega and Philips.'

This fighting talk has already provoked a miffed reaction from Sega: 'Sticks and stones may break my bones, but I'll be kept safe by my installed user base of Mega CDs,' responds Sega's **Simon Morris**.

But if such sabre-rattling at rivals is to be expected, Kipling is not above gently chucking some mudpies at the saintly figure of Trip Hawkins. The trouble it seems is that while dear old Trip is a salesman par excellence, he does tend to fly off on visionary tangents. Philip Kipling, by contrast, is more of a hard-nosed realist. When asked if he shares Trip's glowing forecasts of hardware sales (forecasts which, incidentally, have helped his 3DO company's share price along) Phil says no, not really.

'I've seen some of the figures from Mr Hawkins – he certainly wears rose-tinted spectacles doesn't he? He's talking about 250,000 units a month from day one. I'm not too sure about that. If you look at the UK market, Sega ship 50,000 Mega CDs a month – let's say they're going to sell 500,000 a year. If we could sell that I don't think we will have a problem.'

But Kipling's job is 'sorting out' the software companies to try and make sure there's a decent raft of titles ready for 3DO's UK debut. And once again he is under no illusions about the task ahead. While Trip Hawkins hails to the 350-odd licencees of 3DO as evidence of a ground swell of support for the system among publishers, the view on the ground is rather different.

'I bet the number of development kits →

Continued next page







Highest rated: Sensible Soccer/EA Soccer 94%
Lowest rated: Dracula CD 49%

22 **PC** games reviewed in:


Highest rated: Yo Joe! 84%
Lowest rated: Street Fighter II 28%

24 **SNES** games reviewed in:


Highest rated: Plok! 90%
Lowest rated: Robocop vs Terminator 27%

22 **Amiga** games reviewed in:


Highest rated: Wiz 'n' Liz/Uridium 2 78%
Lowest rated: Huckleberry Hound 5%



Interactivity
the thing most people don't realise is that it's not the graphics or the sound that makes games it's the **interactivity** and you only get it on CD because without 24bit colour and CD sound the **interactivity** just isn't like the real thing have you seen sam jones in return to zork you can interact with him like he was really there yeah i reckon carts have had it...





Photograph: **Peter Canning**

The FZ-JP1 joypad (left) is solidly constructed and very ergonomic. By unclipping the panel and plugging in another joypad (right), players are daisy-chained together

3DO Software

Among the 350-plus 3DO licencees, here are some of the titles in production:

Mad Dog McCree
American Laser Games
Creation
Syndicate
Theme Park
Bullfrog
Eclipse
The Horde
Crystal Dynamics
Red Baron
Dynamix
John Madden Football
PGA Tour Golf
Road Rash
Shock Wave
Twisted
Worldbuilders, Inc
Electronic Arts
Air Warrior
GameTek
Intelliplay Cowboy Casino
Intellimedia Sports
Battlechess
Out Of This World
Interplay
Jurassic Park Interactive
Universal Studios Orbital
MCA
Super Wing Commander
Origin
3D Adventures
3D Football
Park Place Productions
Lemmings
Microcosm
Psygnosis
Dragon's Lair
ReadySoft
Dragon Tales
MegaRace
Oceans Below
Software Toolworks
Star Trek: Next Generation
Spectrum Holobyte
Demolition Man
7th Guest – Part II
Virgin

head to head

'I think the 'Virtual Reality, gee-whizz' era will ease back a little bit, and what we're into now is great content... there's a tremendous opportunity to create some really compelling products.'

Dr Jon Waldern, CEO, Virtuality

'The problem with VR is that there are plenty of hungry people, and when you come out from under your headset you'll find the bastards have trashed your car and nicked your stereo. On a global scale.'

Terry Pratchett, Author

Talk back

'The games market is generally 80 percent sheep who will buy whatever anyone tells them to – the sort of people who buy flares and platform shoes because they are back in fashion.'
John Hare, of Sensible Software, on why genres are killing the games industry. (Edge report on page 62).
'With Virtual Adventures there's six people sitting in the cockpit together, they can freely interact with each other, they can work as a team, which might be a really good family experience.'
Jeff Edwards of Evans & Sutherland on the future of VR (page 52).

← sold is nowhere near the number of licencees, especially when you take on board that EA alone probably has around 20 kits.'

To help speed things along, Kipling is examining several options which range from footing the costs of software development, striking longterm publishing deals with software firms, to even going out and buying a publisher outright. Nothing has been decided yet, but Kipling hints that longterm deal making is the front runner.

Despite his problems mobilising UK software companies Kipling maintains he is still a fortunate man – at least he isn't in the shoes of his US counterparts. 'The machine's launched and they've got about six software titles finished and ready,' he chuckles.

He reckons the first titles to really exploit 3DO's fearsome capabilities will start to appear in November and December. 'Meanwhile I can sit here and watch the titles build up and build up.' He plans to have 85-100 games for the UK – which suggests that even Mr Kipling is not immune to Trippus Estimatus (otherwise known as 'think of a number, double it and add a zero' syndrome).

On the hardware front though, Kipling says things are moving along nicely. Sanyo has already shown a player and 'it is only a matter of time before JVC have a 3DO box.'

But there are some potential problems with distribution. Dixons, which accounts for a massive 25% of all videogame sales, have told Kipling they will *not* be stocking 3DO.

'They've got a *huge* affinity for CD-i. When they heard we were producing an interactive CD player the first thing they asked was 'Is it CD-i compatible?' We said, 'Perhaps not.' They said 'We won't be selling it then''. Kipling predicts Dixons will change its tune when the 3DO sales figures come in.

On CD-i generally he is more generous than you might expect. 'The concept of CD-i is great, [but] they were unfortunate in the timing. There was nothing like it on the market when it came out,' says Kipling. 'Philips are the classic pioneer – he's the guy with all the tyre marks across his back as the other people have ridden over him.'

But with Philips starting to get its act together with Digital Video and genuine quality titles, isn't CD-i emerging as a serious rival to 3DO at last?

'They've put a huge amount of money in the software [and] it's going to be a pretty unpleasant fight. There's a lot of money at stake for both sides,' is Kipling's reply.

And he is adamant that in any boxing match, 3DO is the Lennox Lewis to CD-i's Frank Bruno. 'We don't want consumers to lose out because they bought the wrong standard. My dad bought a V2000 VCR and then bought a Betamax! I know what I'm talking about here...' E

Interview courtesy of **Computer Trade Weekly**

3DO playing CD audio

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2


1. The 3DO automatically detects an audio CD and brings up this control screen (full options are accessed via the joypad). The 3DO logos flap about in time to the beat
2. With the CD playing, you can choose several pattern types. Here the 3DO logo swirls around on a background made up of itself... freakout, baby

Attract mode

This is the regular spot in Edge in which we shamelessly apportion space to the best ingame intros we've seen that month.

Philips' CD-i machine certainly does the business if it's pretty pictures you're after. *Kether* (Prescreen p20) shows what can be done with 16·7 million colours and 650Mb of CD storage. And there's even a half-decent game in there too...



1 **A humanoid figure constructed entirely of polygons drifts through the starry void. A gaseous forcefield then approaches and consumes the figure with mysterious energy (fadeout). Metal blocks swing into view, making the 'Kether' logo**



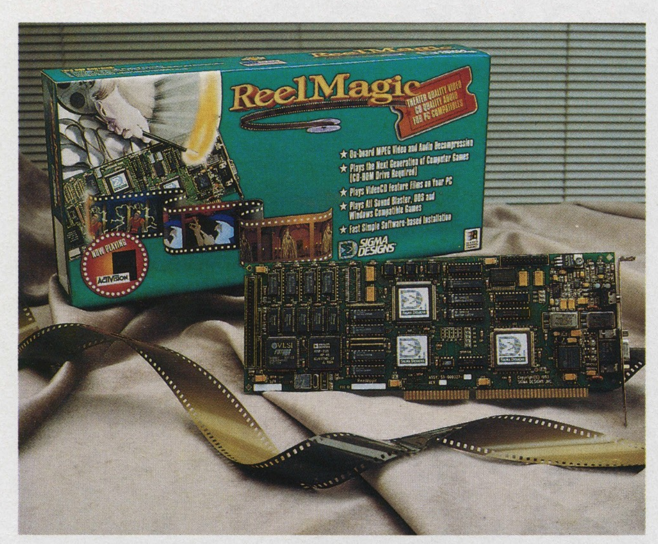
2 **From a scene straight out of 2001: A Space Odyssey, a giant monolith arcs gracefully through space. As it swoops past the screen we see it is embossed with an alien script. Cut to the monolith hurtling towards a green planet and out of view**



3 **A detailed metallic spaceship dollies across the screen, right to left. Cut to a rear view as the ship descends to the planet. In a series of jump cuts we see the emerald planet grow larger and larger as the ship makes its final landing approach**

PCs join the FMV race

PC owners feeling left out of the buzz surrounding full-motion video can rest easy. Reelmagic is a plug-in graphics board which brings any 386 or 486 PC up to MPEG FMV standard. It's showtime...



For 'just' £399, ReelMagic brings the wonders of Digital Video and FMV games to your PC, *and* it even works on 16-colour VGA monitors

Sigma Designs have just released their ReelMagic MPEG-standard full-motion video player. This plug-in PC board supports the MPEG video standard, allowing ordinary IBM PCs to play Video CDs and games containing full-motion video.

ReelMagic plays 32K colour video at 25 frames per second (PAL) up to a resolution of 1,024 x 768 – which is higher than TV.

As long as your PC's graphics card has a VESA-compliant VGA feature connector, the ReelMagic board can receive graphic data from a VGA or S-VGA card and overlay the FMV on top. This means that even PCs with a 16-colour VGA card can still display FMV with 32,768 colours onscreen.

All MPEG decompression is independent of the CPU, so a 386SX 16MHz (that's the minimum requirement for your hardware) displays the same video rate as a 486DX2.

As if that's not enough, ReelMagic is also a 16bit PCM soundcard, giving CD-quality stereo via MPEG audio. It also works with Yamaha's OPL2 synthesizer.

The board, costing £399, comes with an FMV version of Activision's *Return To Zork* on CD, plus a CD-ROM containing 'interactive documentation' and playable demos of other FMV titles, including ReadySoft's *Dragon's Lair*.

ReelMagic works with any CD-ROM system including 150K/sec drives.

Anyone wanting to watch Top Gun or Frauds on their PC should contact Silica Systems on (081) 309 1111, sort of nowish. **E**





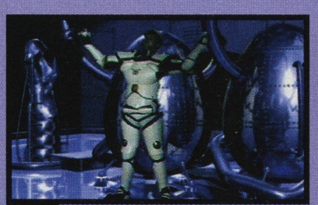
An FMV version of *Return To Zork* (Testscreen, p 90) is included with ReelMagic

Who is it?

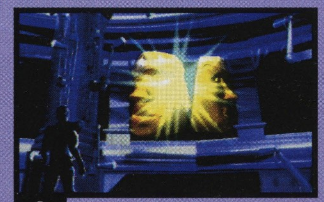
He's a leading games programmer, but he's only produced three games in ten years. His latest game, which has been in development for five years, is a sequel to his first. And the very first game he worked on set him up for life...

Continued next page

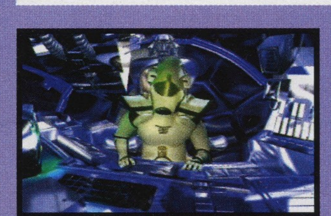
4 Cut to a computer display on board the ship. The polygonal humanoid appears in a head and shoulders shot, with descriptive text flowing down the right side of the panel. The polygon figure is replaced with a photoreal representation of the hero



5 Cut to ship interior: all is shining metal and tubing. Two giant egg-shaped containers fill the room. The left egg glows red, showing the outline of a foetal figure. It grows brighter and brighter until, in a blaze of light, a humanoid figure is 'hatched'



6 Cut to ship interior. In a series of fades we follow the hero around the metallic ship. Cut to a massive chrome temple: zoom in. A pinpoint of light expands revealing a golden three-headed bust, which slowly revolves. It speaks to the human



7 Thus instructed in his task, the human is beamed aboard his fighter. Cut to huge apparatus. Cut to cockpit. Sitting at the controls, his spacehelmet fades into place. Cut to exterior. A polygon space fighter zooms off into the distance. Game on...

Jaguar gets set to pounce

JAGUAR

it is...

David Braben, the man behind *Elite*, *Zarch (Virus)*, and now *Elite II*. *Elite* sold 750,000 copies on all formats, making it one of the biggest selling games of all time. Edge gives his new creation, the sequel to *Elite*, the Prescreen treatment on page 26

EA back on the Nintendo cart trail

Continued

Following the report in Edge two about EA's decision to drop the SNES, Nintendo have stepped in with a new cartridge pricing policy.

To ease the burden on thirdparty licencees, Nintendo will now allow publishers to purchase base cartridges in dollars rather than yen. This will result in considerable savings for licencees, better profit margins and, hopefully, lower RRPs in time for Christmas sales.

Before the announcement, thirdparty SNES titles were suffering from inflated prices, giving Mega Drive titles an advantage of up to £10, also forcing high megabit titles into the stratospheric £60 region.

In response to the move, Electronic Arts has said that it is ready to start thinking about releasing Nintendo products again. But the first units won't appear until early next year.

The Jaguar story rolls on with Atari announcing its first batch of licencees. There are still some 'major licencees' to be announced – including heavyweights like Virgin, Gremlin, Accolade and Acclaim. But more news on this next issue...

Atari UK are also in favour of having a shipout of 5,000 Jaguar machines before Christmas in the UK. The decision whether this will actually happen or not rests with Atari's US headquarters. The American launch of Jaguar will happen in early November in New York.

The hardware

Edge was invited down to Atari's HQ in Slough for a preview of the new 64bit Jaguar. The machine itself is a nice looking piece of kit – slightly overdesigned perhaps, but well made and solid. The case is a slick matt-black affair with heavily embossed red Jaguar logo – no mere cheap paint job, this.

Sadly, the same cannot be said about the joypad, which feels cheap and very tacky. The suspiciously lightweight shiny black unit isn't terribly comfortable to hold – not surprising, considering the 12-button pad in tow – and both control pad and fire buttons were spongy and unresponsive.

The software

At the heart of any new system is its software. The 3DO Multiplayer rolled out with the excellent *Crash 'n Burn* (but little else) – so what can eager would-be Jaguar owners expect to be playing?

Cybermorph

This game is a cross between *Virus* and *Starfox* and while it sounds the most promising of all the Jaguar's games on paper, it could be a major disappointment. The 3D vector graphic landscape is projected only into the middle distance, as if you are flying over a tabletop which is continually being contoured. And you have react very quickly, as enemy ships and buildings appear suddenly rather than gliding into view.

But *Cybermorph* does go some way to showing what the Jaguar can do. It shifts a *load* of lightsourced polygons realtime.

Aliens Vs Predator

Possibly the most visually impressive of the group, *Aliens Vs Predator* is a slick firstperson perspective shoot 'em up set inside a colonial complex – just like Aliens, in fact. Here, the player gets to race around shooting aliens, predators or even your own colonial marines if you feel so disposed.

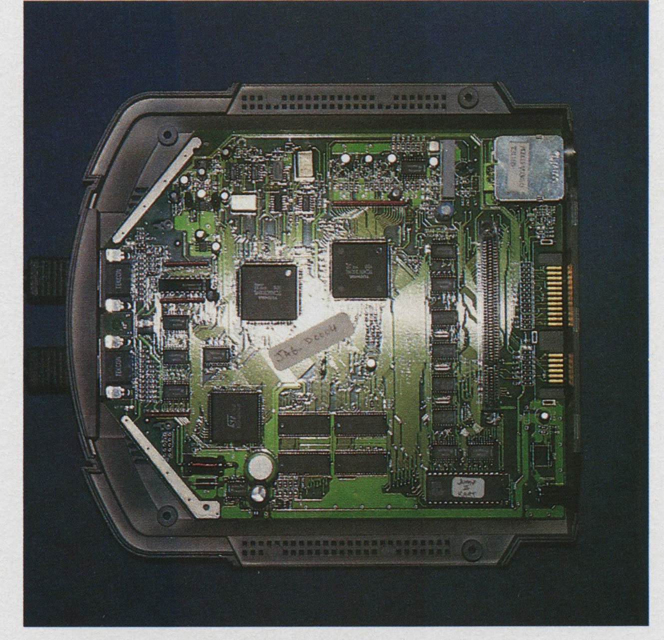
The scrolling 3D hallways and corridors are smooth and detailed using texture mapping. But it's no more than owners of a 486DX would expect. The saving grace is the fully animated, scaled and depth-cued baddies: when they're in place and moving well, it could be a whole new ballgame.

Tempest 2000

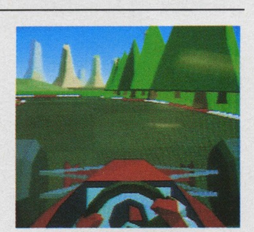
This early version of *Tempest 2000* is a direct conversion of the original coin-op, although the programmer, Jeff Minter, intends having two versions on the cart, one with filled polygons. Playability-wise, this is best of the bunch, although it too was slightly marred by a piercing death-scream that went on far too long. At least it really makes you dread losing a life.

Checkered Flag II

In great Atari tradition, one of the first Jaguar games is a road racer based on their classic coin-op. *Checkered Flag II* is →



The belly of the beast. The two black squares in the middle are Tom and Jerry – a 64bit graphics and 32bit sound processor, respectively





Among the Jaguar's opening salvo of games are *Checkered Flag II* (top) a fast, polygon-based F1 simulator. And *Cybermorph* (bottom), a fast polygon-based combat simulator. If nothing else, at least it proves that the Jaguar sure can handle those polygons...

First Jaguar developers announced

So, here's that list of software developers working on games for the Jaguar. Not quite as many as Trip Hawkin's 350 'devoted' thirdparty developers, but maybe some of these Jaguar licencees will use their developer's machines as more than just paperweights, eh?

Anco Software
Beyond Games
Dimension Technologies
Eurosoft
High Voltage Software
Krisalis Software
Loriciel SA
Maxis Software
Microids
Midnight Software
Ocean Software
Rebellion Software
Retour 2048
Silmarils
Telegames
Tiertex
Titus
Tradewest
Trimark Interactive
US Gold

← something of a quantum leap over its inspiration, though. The graphics are made entirely of polygons, *Virtua Racing*-style.

Again, this was a very early demo, and so while it's unfair to pass any major judgement, it did look basic – not up to the best PC racers – and the car was decidedly uncontrollable.

Of course, just how much gamers actually *need* another Formula One simulator is another matter altogether...

Trevor McFurr In Crescent Galaxy

And finally we come to Trev and his space shoot 'em up. Now much as we realise that it's early days, and programmers need time to get to grips with the Jaguar's 64bit architecture etc, this has to be the most dismal piece of software **Edge** has seen for a long time.

At best, it's a colourful horizontally scrolling shooter, with cleverly animated bosses. At worst, it is an ill-conceived, poorly designed, badly implemented and utterly random blaster with almost no redeeming features.

The scenery is moderately pretty at times; although believable – if indeed any – parallax seems beyond the capabilities of 64bit processing. Enemies attack, not so much in waves, as in random clusters. And the only thing that seems to connect the game together is that the stars of the show are humanoid animals – hence the Trev of the title – whose photorealistic images are made up of army officers' bodies with animals' heads 'glued' on. Laugh? We nearly started... If there is only one cart available when Jaguar launches, and this is it, please don't buy it.

So, all in all, something of a mixed bag. All still have plenty of work to be done on them (one actually needs restarting from scratch) and hopes for the machine remain high. **E**

i wish...



David Jones

'... that the software industry decided on one single powerful platform that could become the standard for videogames. If this happened it would allow developers to concentrate more on game design – without constantly having to hold back their ideas to fit the game onto all the different platforms.

'Just imagine, if we could devote all our resources onto producing one game per year, that game would be of outstanding quality, with an enormous richness of gameplay. Basically, we have far too many platforms in the market, with too many low quality games at high prices. A single hardware market would give gamesplayers higher quality games at a lower cost.

'Of course, the hardware would have to be upward compatible, to ensure that exciting new features could be added to the machine every year or so, but still allowing all older games to play.

'One day...'

David Jones is a top programmer at DMA Design in Dundee. He has designed and programmed some cult-status videogames, including *Lemmings*, *Lemmings 2* and *Walker*... DMA were also responsible for *Blood Money* on the ST and Amiga.

Bad press

The media continues to fall over itself in its concern over videogaming. Epilepsy? Antisocial behaviour? That's the least of it...

Er, 'sorry, Sega'

A fine example of newspaper journalism entirely freed from the fetters of research and validity appeared in the holier than thou Independent on Sunday in early September. 'Sega games cause eye damage', it boldly proclaimed, referring to Sega's Virtual Reality project. Well, it is possible that VR headsets can damage eyesight, but the fact that Sega's VR games are still in research – none are yet on the market, rather scuppered the IoS' article.

Sega's lawyers got on the case and allegedly gave the Indie hacks a real kicking. An apology appeared in the Independent on Sunday on October 3rd. 'We apologise for the embarrassment caused (whose?)', it proclaimed – not quite so boldly this time.

source: Independent on Sunday, 5/9/93, 3/10/93

And 'Thanks, Dad'...

Under the heading 'Boffins have got it wrong – Dad zaps videogame findings' we learn about the father of Mike Kenneally, who claims that researchers into epilepsy 'have got it wrong'. His claims are based on the fact that his son wasn't tired, but had a fit after playing 'that Super Mario TV game'.

'Dozens of similar cases' came to light nationwide 'after the South Wales Echo revealed the link between computer games and epilepsy' in January, the paper claims.

source: South Wales Echo, 24/9/93

Books are 'boring' – shock

'Square eyed youngsters in the North are shunning their books in favour of... playing computer games', complains the Shields Gazette. 'Nearly half of all the children questioned... said they found books boring', the article continues. The question was asked as part of a survey carried out by food giant Bird's Eye. And we can reveal exclusively that nearly half of the staff on **Edge** sometimes eat fish fingers, or other types of fish. Must be all that gaming, eh?.

source: Shields Gazette, 31/8/93

Mortal Kombat – art?

Late night arts chat show, The Late Show, got slightly out its depth when it invited celebrated gore novelist Will Self to review the 'virtual reality game' *Mortal Kombat*. And Will's reaction? Just a laconic thumbs down for Acclaim's VR masterpiece.

source: The Late Show, 27/9/93

VR leads at UK leisure show

With big US Virtual Reality companies showing their wares at the International LIW show in Birmingham, it's only a matter of time before the UK becomes immersed...



There's a new videogame coming to town. Iwerks Entertainment are targetting the UK for their Cinetropolis theme parks, with rides like Sub-Oceanic Shuttle (above)

The UK's biggest exhibition of out-of-home leisure products and services took place at the NEC in Birmingham on the 5th to the 7th of October. The International Leisure Industry Week (LIW) featured material from all the big names in entertainment, including the latest on interactive Virtual Reality rides.

Iwerks Entertainment makes big screen theatres and produces films screened at these venues. The company is behind a film ride based on the soon to be released RoboCop 3.

But, more interestingly, Iwerks has been working on a ride with Virtual Reality big timers Evans & Sutherland, and the secret project is now close to completion.

The first in their Virtual Adventure series, this new underwater ride is made up of eight 'submersible' pods that seat six occupants. The pods are static, but viewing screens are all linked to a high-powered image generator providing a 3D underwater playscape that truthfully reflects the virtual movement of all eight 'subs'.

The objective of the ride is to explore an undersea world, collecting eggs belonging to the Loch Ness Monster. The teams in the eight different pods play either scientists, collecting them for a museum, or bounty hunters stealing them for a fat profit.

The extra excitement of prehistoric amphibians and the race to beat the other pods just adds to the fun. The whole development is planned to open in the middle of 1994 at Iwerks' own Cinetropolis, a movie-based theme park opening in America.

There's one other new VR project that has also been swathed in secrecy. Edison Brothers, a big operator of arcades at malls in America, and Paramount Pictures, have been developing a Star Trek: The Next Generation entertainment centre. It's planned for the end of 1994.

Powerful VR, linked with Motion platform technology and computer-generated imagery will be used to recreate the Battle Bridge, Transporter Room, Engineering and Holodeck of the Starship Enterprise.

The biggest revelation concerning this venue is that the software environments for the centre will be programmed by Spectrum Holobyte. The California based company is already working on 3DO titles using the Star Trek: The Next Generation licence.

Competition was stiff amongst softies to be involved in what could be 1994's largest virtual entertainment programming project. Information from well-placed sources suggests that Microprose, Sega, Silicon Graphics and even Atari were in the running to land this prize.

But it was commitment to simulation gaming and a strong programming background (and a lot of arm twisting), that led to the decision...

NEC's Iron Man for Spring 1994?

Rumours about NEC's proposed 32bit system – nicknamed Iron Man – have long been circulating in Japan, and now it's expected that the system will be released in the Spring of 1994.

NEC revealed their proprietary 32bit hardware back in the summer of 1992. A board containing five custom chips developed by Hudson Soft – the company behind the PC Engine's dedicated graphics chips – showed off the polygon graphics capabilities of the system.

However, it's uncertain whether this is the same hardware destined for inclusion in the Iron Man.

As the main CPU, NEC have used a 32bit RISC chip (running twice as fast as the one found in the 3DO), but have included dedicated 3D graphics engines which apparently leapfrog the performance of the custom animation cells inside the 3DO.

If Hudson Soft create the first 32bit games for the Iron Man, you probably won't see the fiasco that currently plagues Atari and their wasted Jaguar system...

Data stream

Percentage of readers of MEGA who regularly read Viz: **38**
Average number of miles travelled by visitors to attend first Future Entertainment Show, Earls Court, London 1992: **70.5**
Average amount of money spent by each visitor to first Future Entertainment Show, Earls Court, London 1992: **£56.67**
Percentage of homes with VCRs: **77**
Percentage of homes with computer: **30**
Percentage of homes with CD: **30**
Percentage of homes with satellite dish: **10**
Percentage of homes with videogames: **17**
Percentage of 11-14 year olds who wear jeans without a popular label: **56**
Percentage of 15–19 year olds who wear jeans without a popular label: **32**
Cost of licence to rent Sega carts: **£400**
Number of Blockbuster and Ritz video stores with licences to rent Sega cartridges: **800**
Percentage of videogames sales to consumers under the age of 15: **70**
Number of Americans owning Super Nintendo: **8.7m**
Money lost by Commodore International in financial quarter to 31 March 1993: **$177.6m**
Estimated cost of making Jurassic Park: **$100m**
Money spent on promoting Jurassic Park: **$95m**
Worldwide sales of CD-i: **80,000**
Where does Sega get its name from? From **SErvice GAmes**, a Japanese company founded in 1951

Sources MEGA reader survey 1993; FES visitor analysis 1992; Television: The Public's View, by Barrie Gunter and Paul Winstone; Youth TGI Pilot 1992; Sega, Blockbuster; Minoru Arakawa, President, Nintendo of America; CTW 7 June 1993

Nintendo backs out of CD-ROM



The pros and cons of CD-ROM

So what are pros of cons of CD-ROM technology? With 650Mb of storage space, CDs can store encyclopedic amounts of information, over an hour of music, pre-rendered graphics and now, with the advent of MPEG standardisation, full-motion video.

With slow access times and data rates of 150-300k/second, they are clumsy and slow. But the amount of data needed to feed sound and pictures to a 64bit machine really require CD storage.

And, what's more, they're relatively cheap to manufacture. Unlike cartridges – and we already know how much they cost...

For more info, see CD-ROM: The Truth, featured in Edge two.

Nintendo seems set to fly in the face of accepted games wisdom by designing its next generation console to run on cartridges, not CDs. The snub for the format – which almost every other major player believes to be the future of gaming – has not yet been announced officially, but sources close to Nintendo say that the decision has already been made.

It was significant that in its recent announcement of a linkup with Silicon Graphics to produce a 64bit superconsole in 1995, Nintendo did not specify what the machine would run, but took care not to mention the word CD.

If the firm does choose to stick to carts, many games pundits believe it will be basing its decision purely on commercial rather than technical reasons. Nintendo has become one of the most successful companies in the world by selling hardware as cheap as possible, building up massive installed user bases and then making money on every piece of software sold to feed the machines.

Obviously it profits from those titles that it publishes itself, but by controlling all manufacturing of Nintendo carts and charging premium prices for the process, it also profits from every sale of every thirdparty title. This level of control would be extremely difficult to maintain when operating in a more open environment such as CD, and it would be more or less impossible to charge thirdparties the sort of prices for CD duplication as it does for cartridges (around £10-£15).

One prominent publisher told **Edge**: 'They can argue till they're blue in the face but they cannot tell me one single advantage that cartridges have over CDs. The only reason they're sticking to carts is to follow the pattern that's made them their fortunes.'

Footnote: Atari seem to have taken a similar step with their 64bit Jaguar, which is to be sold without a CD drive. The first batch of games come on normal sized cartridges. However, Atari have managed to increase cart capacity up to 50Mbytes using JPEG data compression techniques.

Datebook

November

Future Entertainment Show: November Thursday 11th-Sunday 14th, Olympia, London **(0225 44224).** Thursday 11th, 10.00-8.00 (late opening for GamesMaster Live broadcast session), Friday 12th, 10.00-5.00, Saturday and Sunday 9.00-5.00. Tickets all £6.95; family group (four people with at least one adult) £24.95.

Christmas International Computer Show: November Friday 19th-Sunday 21st, Wembley Exhibition Hall, **(0222 512128).** Open 10.00-6.00, Fri,Sat; 10.00-4.00, Sun. Tickets £6 on the door; £8 by advance booking.

Supergames: November Wednesday 24th-Sunday 28th, Porte de Versailles, Paris **(010 331-4200 3305).**

VR User Show: Monday 29th November-Thursday 2nd December, London Novotel **(081-994 6477).** Tickets £7 (free if you pre-register).

Virtual Reality Show: New York Hilton, New York. Monday 29th November-Thursday 2nd December. Free Admission.

December

Computer Shopper Show Christmas '93: Thursday 2nd-Sunday 5th December, Grand Hall, Olympia, London. **(071-373 8141).** Tickets £7 adults, £5 kids (cheaper when booked in advance). Open 10.00-6.00 Thurs-Sat; 10.00-5.00 Sun.

January '94

Consumer Electronics Show, Las Vegas: Thursday 6th-Sunday 9th January, The Show Centre, Las Vegas, California USA organised by Consumer Electronics Group of Electronics Industries Association. **(0101 202-457 8700).** Former trade-only event is now open to public.

February

Virtual Reality '94: Novotel, Hammersmith, London (071 976-0405). Feb 1st-Feb 2nd, Open from 9.30-5.00. Tickets £10 on the door. Trade free.

April

International Computer Show: Friday 22nd April-Sunday 24th, Wembley Exhibition Hall (0222-512128), Open 10.00-6.00 Fri-Sat, 10.00-4.00 Sun. Tickets £7 adults, children under 10–£5. Advance ticket discount.

Just the job?

Well, the perks are great – you play games, you design graphics, you get famous and you make pots of money. So, here's a selection of the best openings around at the moment in the industry... Don't call **Edge**, call them!

Systems Programmers, 'must have a degree in computer science or engineering and be a competent C/Unix programmer. Previous experience in the games industry not essential.' Rare Ltd 0827-880810

Games Programmers, 'for cartridge-based games. Familiarity with some assembly language required. Must be a games player, although previous on the job experience isn't essential'. Rare Ltd 0827-880810

Games Programmers 'experienced programmers who have worked in 80386 assembly language, to work on adventure and RPG games. Must be willing to relocate to Los Angeles. Cyberdreams, David Mullich: (818) 348 3711.

Programmers, Artists and Designers 'Programmers need proven track record in 8086, 68000, 6502 or Z80. Codemasters, Duncan Kershaw: Fax 0926 817595.

Programmers and Artists 'experienced and talented videogame artists and programmers... an impressive package is on offer to the right candidates. Must be responsible for one published product...' Images, Fax 0329 822786

Freelance games player 'seriously good Nintendo and Sega gamesplayer with extensive knowledge and love of games. Aged 17-21'. Write to Colin Campbell, Future Publishing, 30 Monmouth St, Bath BA1 2BW

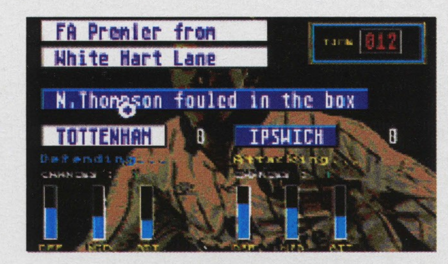
Championship Manager Amiga **Mortal Kombat** Super NES **Mortal Kombat** Mega Drive **Night Trap** Mega CD **Tourneco's Great Adventure** Super Famicom (Japan) **Silpheed** MD (Japan) **Day Of The Tentacle** PC CD-ROM **Microsoft Flight Simulator** PC...



The very latest **charts** from across the entire world of videogaming

Amiga

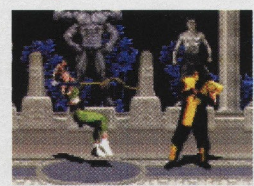
1. **Championship Manager** Domark (£26)
2. **Syndicate** EA (£35)
3. **Project X** Team 17 (£13)
4. **Alien Breed Special Edition 92** Team 17 (£11)
5. **F17 Challenge** Team 17 (£13)
6. **Premier Manager** Gremlin Graphics (£26)
7. **Dogfight** Microprose (£35)
8. **Sensible Soccer 92/93** Renegade/Mindscape (£26)
9. **Gunship 2000** Microprose (£35)
10. **Soccer Kid** Krisalis (£30)



Football games seem to be all the rage at the moment, and Domark's offering is no exception

Domark's Championship Manager is currently winning the battle of the footy sims, and it takes hold of the number one spot. Microprose's *Dogfight* comes from nowhere to fly straight in at number 7, but the rest of the titles have just re-shuffled.

Super NES



Acclaim seem to have got their marketing strategy just right. *Mortal Kombat* steam rolls its way right to the top

10 **Batman Returns** Konami (£50)
9 **Tiny Toons: Buster Busts Loose** Konami (£50)
8 **Super Star Wars** JVC (£50)
7 **Alien 3** LJN (£50)
6 **Starwing** Nintendo (£50)
5 **Super Mario Kart** Nintendo (£40)
4 **Street Fighter II Turbo** Capcom (£60)
3 **Striker** Elite (£45)
2 **Mario All Stars** Nintendo (£50)
1 **Mortal Kombat** Acclaim (£60)

Mega Drive

1. **Mortal Kombat** Acclaim (£50)
2. **Jungle Strike** EA (£45)
3. **Jurassic Park** Sega (£50)
4. **Micro Machines** Code Masters (£35)
5. **PGA Tour Golf 2** EA (£40)
6. **Bubsy The Bobcat** Accolade (£40)
7. **Flashback** US Gold (£45)
8. **Ecco** Sega (£40)
9. **Cool Spot** Virgin (£45)
10. **Sonic The Hedgehog 2** Sega (£40)

Mega CD

1. **Night Trap** Digital Pictures (£50)
2. **Batman Returns** Konami (£50)
3. **Final Fight** Capcom (£45)
4. **Road Avenger** Renovation (£40)
5. **Jaguar XJ220** Core Design (£45)
6. **Sherlock Holmes** Sega (£45)
7. **Prince Of Persia** JVC (£45)
8. **After Burner 3** Sega (£40)
9. **Wolfchild** Sega (£45)
10. **Black Hole Assault** Sega (£40)



The rather clumsy *Night Trap* still leads the way, but for how much longer?

The Mega CD is in dire need of decent software. The positions seem to just shuffle from month to month. *Final Fight* still hasn't got what it takes to steal the number one position, until next month that is...

The Mega Drive version of *Mortal Kombat* retains the blood and guts of its arcade parent



SFC (Japan)



The cut-down beginners' RPG, *Final Fantasy USA*, hit the US first as *F.F. Mystic Quest*

Chun Soft – the creator of the *Dragon Quest* series has scored a hit with the great looking action RPG *Torneco's Great Adventure*. And what about Koei's horse racing game *Winning Post*? At ¥12800 (about £85!) this has to be the most expensive game around. Who in their right mind would buy that? The Japanese, that's who.

1 **Torneco's Great Adventure** C Soft (¥9800)
2 **Winning Post** Koei (¥12,800)
3 **Augusta Masters 2** T & E Soft (¥9900)
4 **Final Fantasy USA** Square Soft (¥7900)
5 **Super Mario Collection** Nintendo (¥9800)
6 **SD Gundam 2** Angel (¥9800)
7 **Super Horse Racing** I'max (¥9700)
8 **Mario and Wario** Nintendo (¥9800)
9 **Seiken 2** Square (¥9800)
10 **Super Bomberman** Hudson Soft (¥7800)

B-movie malarky in US Gold's *DOTT*



US Gold's *DOTT* yet again holds off Virgin's expensive *7th Guest*, and stays top of the charts. And that other Virgin smoothie, *Dune*, is also stationary this month in its number three slot. *Dune* (on Mega CD) is reviewed in this issue on page 86.

MD (Japan)

1 **Silpheed** GameArts (¥8800)
2 **3X3 eyes** Sega (¥8800)
3 **Puyo Puyo** Sega (¥4800)
4 **Ecco The Dolphin** Sega (¥8800)
5 **J-league** Sega (¥7800)
6 **Super Shinobi II** Sega (¥6800)
7 **Golden Axe III** Sega (¥6800)
8 **Mega Schwarzchild** Sega (¥7800)
9 **Arcus I.II.II** (¥8800)
10 **Fatal Fury** Sega (¥8800)



Seems like the Japanese have decided to stop using their Mega CDs as door stops

PC CD-ROM

1 **Day Of The Tentacle** US Gold (£46)
2 **The 7th Guest** Virgin (£70)
3 **Dune** Virgin (£50)
4 **King's Quest V** Sierra Online (£50)
5 **Sherlock Holmes 3** Mindscape (£50)
6 **Chessmaster 3000** Mindscape (£45)
7 **Great Naval Battles** US Gold (£45)
8 **Indiana Jones** US Gold (£46)
9 **Laura Bow 2** Sierra Online (£45)
10 **Eric The Unready** Accolade (£35)

PC



The ultra-realistic *Flight Simulator* from Microsoft seems to have made a big impact

Sensible Soccer is gradually slipping down the PC chart, as is *Day Of The Tentacle*. But the sudden emergence of *Zool* proves that PC owners also like a bit of arcade fun from time to time.

10 **Links 386 Pro** US Gold (£46)
9 **Sensible Soccer 92/93** Renegade/Mindscape (£33)
8 **Railroad Deluxe** Microprose (£40)
7 **Populous & Promised Lands** Hit Squad (£15)
6 **Day Of The Tentacle** US Gold (£43)
5 **Links – Belfry** US Gold (£23)
4 **X-Wing** US Gold (£46)
3 **Zool** Gremlin Graphics (£35)
2 **Wing Commander: Privateer** US Gold (£50)
1 **Microsoft Flight Simulator**

Most Wanted

After the brilliant *Crash 'n Burn*, Crystal Dynamics now have a loyal following. *Total Eclipse* is the most wanted this month, with *Power Slide* coming a close second. *Forgotten Castle* gained a few more votes than *Virtua Racing*, and Atari's Jaguar joins the elite with *Crescent Galaxy*.

5 **Crescent Galaxy** Jaguar
4 **Virtua Racing** Mega Drive
3 **Forgotten Castle** PC
2 **Power Slide** SNES
1 **Total Eclipse** 3DO

Total Eclipse Kether **Secret Of Mana** Alone In The Dark 2 **Elite II** Macross **Rebel Assault** Inca 2 **Sim City 2000** Subwar 2050 **SSN21 Sea Wolf** Pyramid Patrol **Super Darius II** 3DO Scene

Prescreen

Prescreen is where **Edge** starts getting serious. After all, it's the future of videogaming at stake here, and that's no laughing matter.

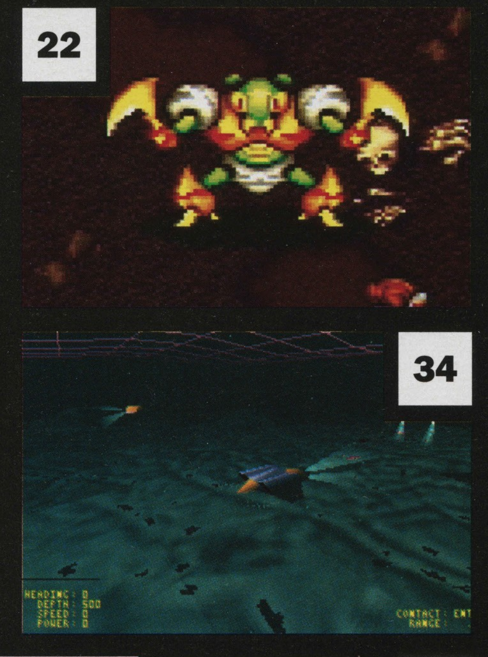
Some of our investigative team were on the road for months getting these stories. And, take our word for it, tracking down all the best new videogames in development around the world is hard and thirsty work...

Anyway, top of the heap this month is *Total Eclipse*, Crystal Dynamics' follow up to the excellent *Crash 'n Burn* for the 3DO (see Testscreen, p 78). And we've got all the details on the new CD-i action adventure, *Kether*, and the news on Infogrames' long-awaited sequel, *Alone In The Dark 2*.

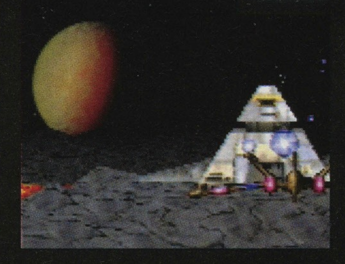
But it doesn't end there...

We've also got a full report on *Elite II*, the new project for programmer David Braben – the man behind *Elite* and *Virus*.

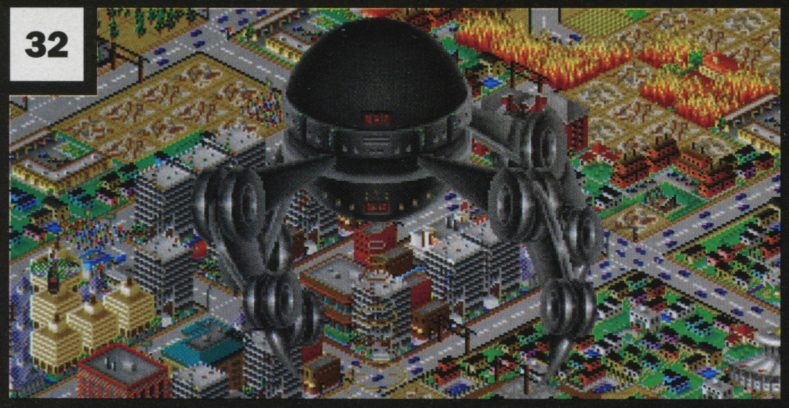
It's here and it's happening now. Get ready, you're going in... **E**

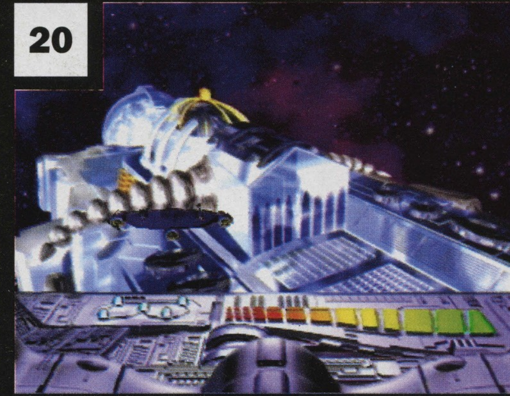










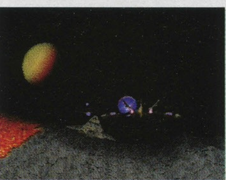


Total Eclipse

Crystal Dynamics' second 3DO title is well named – it could well eclipse all other 3DO titles...

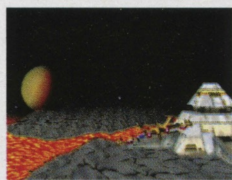












This sequence aptly demonstrates *Total Eclipse* in full flow. Yes, this all moves smoothly and yes it's all rendered realtime. No kidding

Format: **3DO**
Publisher: **Crystal Dynamics**
Developer: **In-house**
Release date: **November**
Size: **1 CD**
Origin: **US**



There is some debate over what the 3DO logo actually stands for, but with *Total Eclipse* it must be '3', 'Dimensional' and 'Outstanding' – Crystal Dynamics certainly aren't pulling any punches with their first 3DO titles.

This space combat simulator employs Crystal's proprietary Dynamic Coordination Mapping System (DCMS) – effectively a texture-mapped polygon environment, running at over 20 frames per second.

And it's very, very impressive. You guide a FireWing fighter across depthcued planet surfaces, along twisting canyons and through zig-zagging tunnels. The visuals are smooth, detailed and utterly convincing. The fact that it's all generated realtime means that you can fly anywhere, any way – unlike CD-based games like *Silpheed*.

As with *Crash 'n Burn* (page 78) you can fly from the pilot's seat or in a chase plane, viewing your own craft from behind. There are different weapon systems to collect including a 'Phase Coil' which diffuses the ship so that it appears to fly through solid objects – a visual trick reliant on 3DO's custom hardware.

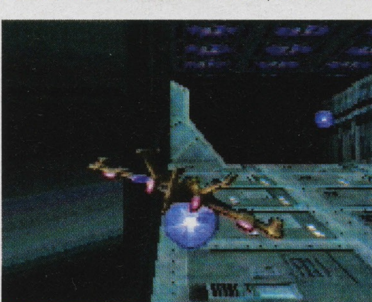
In fact the entire game is testament to the 3DO's capabilities: 'It's pure 3DO architecture,' said Crystal's marketing manager, **Scott Steinberg** when we visited Crystal's Californian HQ in **Edge** one.

But let's hope Crystal Dynamics haven't been blinded by science to the detriment of gameplay. No matter how smooth the graphics, if it's just a demo of the 3DO's technical prowess, it'll sell units, but won't make any friends.

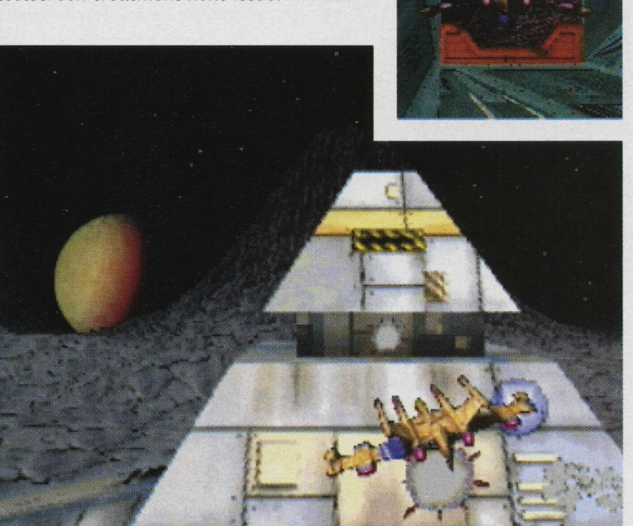
Total Eclipse gets the **Edge** testscreen treatment next issue.

Even the tunnels contain animated doorways, force fields and gun emplacements





Tunnel interiors (above top) have an amazing level of texture-mapped detail



Unlike the software texture mapping evident on PC games, the 3DO's hardware gets 'right up close' without pixellating or breaking up

Kether

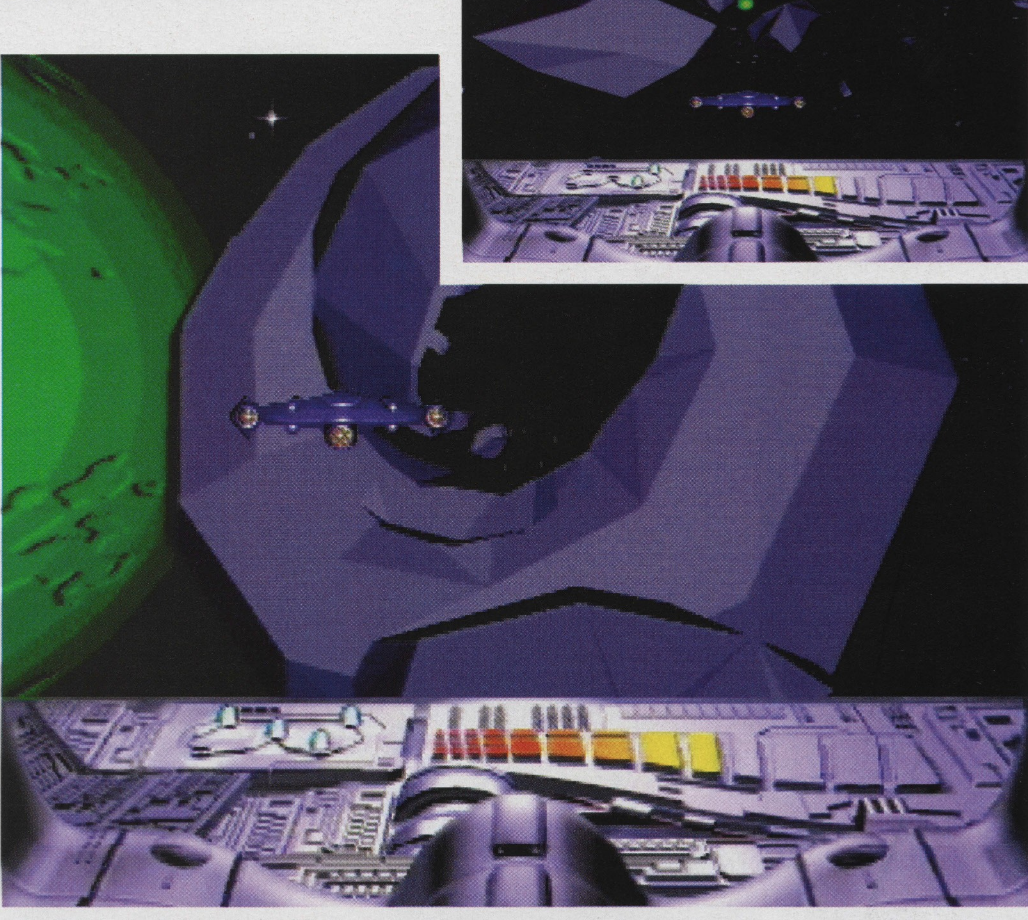
With *Kether*, Philips' CD-i system shows that it can do more than show pretty pictures and play great sound. Though it does that too...



Success is greeted by the Gods of Light giving you some advice



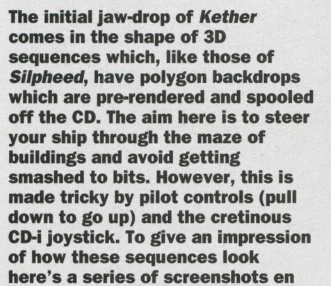
Death is greeted by the Master of Darkness having a good old laugh



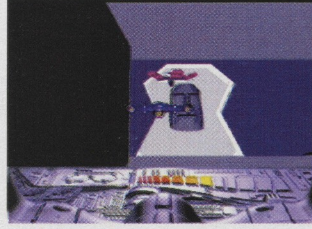
The 3D flying sections (above) of *Kether* are hugely impressive. In the first sequence, you have to run the gauntlet of a particularly nasty asteroid belt. However, your ship's energy can be replenished by hitting the green orbs (inset)

Format: **CD-i**
Publisher: **Philips**
Developer: **Infogrames**
Release date: **November**
Size: **1 CD**
Origin: **France**

The veritable flood of high quality CD-i titles continues with *Kether*. This... *original* space shoot 'em up is something of a cross between *Silpheed* and *Dungeon Master*, with a pseudo religious theme and lots of shiny metal.



The initial jaw-drop of *Kether* comes in the shape of 3D sequences which, like those of *Silpheed*, have polygon backdrops which are pre-rendered and spooled off the CD. The aim here is to steer your ship through the maze of buildings and avoid getting smashed to bits. However, this is made tricky by pilot controls (pull down to go up) and the cretinous CD-i joystick. To give an impression of how these sequences look here's a series of screenshots en route to one of the temples...



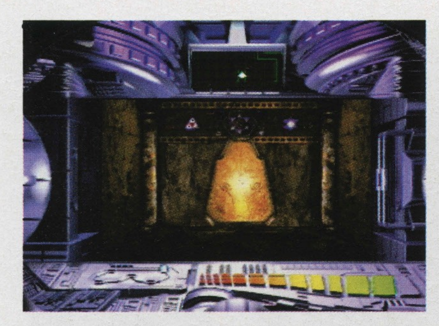
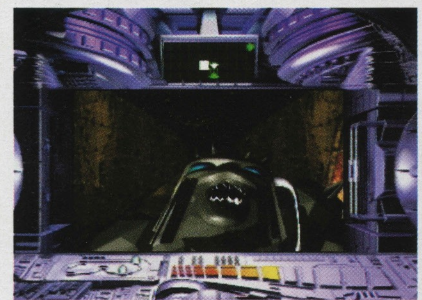
1 Your ship swoops into an alien city and heads at high speed towards a doorway...



2 ... Which opens just in time, allowing you to whizz through the arch and up a hallway



3 Avoiding the columns and pyramids you fly under the face and into the next chamber


Inside the temple, the game switches to an explorer's eye-view. The aim here is to discover the location of six halls, signified by a golden doorway (top left). Survive the alien guards (bottom left) and you enter a stunningly-rendered room, containing ghostly apparitions and a piece of secret code

A cross between *Silpheed* and *Dungeon Master* with lots of shiny metal

The game is split up into five missions with stunning 3D flying sequences followed by not-quite-so stunning 3D labyrinth sections.

Upon choosing a mission you have to guide your ship through a 3D section, dodging asteroids or avoiding enemy ships and buildings, depending which enemy temple you're attempting to infiltrate.

These sections are by far the most impressive part of the game, and although *Silpheed*'s visuals are more of a rollercoaster ride, the backgrounds in *Kether are* just as swerve-inducing as you duck beneath thousand-ton asteroids or sneak through the narrowest of tunnels.

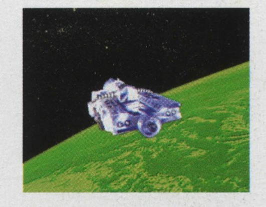
Because these backgrounds are spooled off CD, you can't alter your course through the level. However you can still collide with objects and enemy ships, which really places you within the environment.

Having survived the 3D trip, you then have to enter the temple itself, by solving a puzzle sub-game. Within the temple the game changes again to a firstperson view of the catacombs. Your exploration is hindered by alien guards, but sadly these creatures exist only in two locations: 'down the hall a bit' and 'right up close'. More frames of 3D update would have heightened the effect considerably.

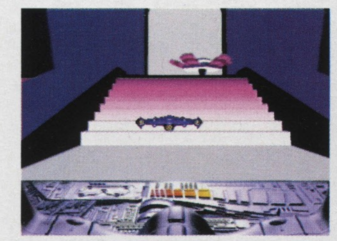
Kether on CD-i does go some way to showing what the system can do – certainly the 24-bit images are wonderful. And although the sub-sections are a little disparate, the game as a whole is engrossing and visually impressive. **Edge** will have a full review next issue.

Credits

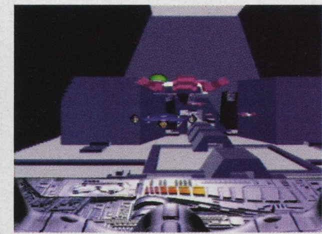
Programming: Benoit Arribart
Programming: Pierre Crooks
3D animation: Eric Couture
3D animation: Yves Lognonne
Graphics: Josiane Girard
Graphics: Laurent Cluzel
Music: Jaques Roux



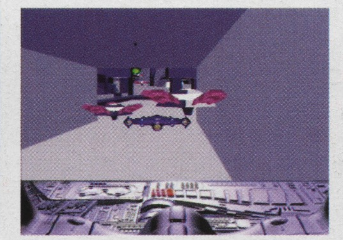

To begin a mission, you choose a temple (top). Survive the 3D section and there's a neat sequence showing your craft swooping in to land



4 Dodging a fleet of enemy ships, you fly up the stairway and through another doorway



5 Into the next chamber and your ship swoops down and under the hangars on the floor



7 Carefully avoiding the sides and more enemy ships, you fly out and head for a giant statue



8 Skimming the massive stone heads, you pull out of the city and off into the wild pink yonder...

The Secret Of Mana

It sold out in the first days of release in Japan. And now US SNES owners are about to find out why. Edge joins the quest



The adventure has just began (above) and our hero enters a friendly town. In typical RPG fashion, houses may be searched for useful items. Unfortunately this one (left) has nothing to offer

Format: **SNES**
Publisher: **Square Soft**
Developer: **In-house**
Release: **November (US)**
Size: **16 Mbit + BB**
Origin: **Japan**

Role-playing games are very, very big business — in Japan. For some reason, British console publishers have steered well away from bringing these games to western shores. While Mega Drive players have the *Phantasy Star* series and *Land Stalker*, UK SNES players are only just seeing the first signs of RPG life crawl onto the scene.

With the exception of *Zelda*, and a US translation of *Final Fantasy IV* (renamed *Final Fantasy II*), the only option open to most British SNES-owning RPG fans has meant buying Japanese versions and wading through screen after screen of Japanese text.

But the rather nervous attitude of British publishers towards this genre is slowly but surely changing. And it's about time too. It would be ironic if Square Soft's engrossing *Final*



***The Secret Of Mana* is a huge game. Warp tiles (above) aid transportation**

There's a wealth of characters to interact with, and teleports to take you to strange dimensions and hidden worlds



Square Soft, having virtually cornered the Japanese RPG market, are ready to bring one of their biggest selling titles to Western shores

Fantasy IV and V, two of the biggest selling games ever in Japan, were never released in this country. But the impending UK release of the beginners' *Final Fantasy* game, *Mystic Quest*, – the first of a Square Soft and Nintendo licensing deal – suggests the games could be on their way.

The Secret *Of Mana* is the US name for the Japanese action RPG, *Seiken Densetsu 2* – one of the most eagerly awaited RPGs Japan's ever seen. Not surprising, since the company responsible are Square Soft, second only to Nintendo in the popularity stakes over there. And the US arm of the company has taken the initiative of bringing this title to the US market. Nintendo are expected to release it in the UK next year.

Like most Square Soft games, *Seiken 2* sold out within the first few days of release in Japan. So what's so special about this Square Soft title?

Well, the action is viewed in a ¾ top-down perspective, not unlike that of *Zelda*'s. But it's graphically superior, with a vibrant colour scheme. Sound is equally impressive. The soundtracks have an ethereal, almost new-age ambience, and are beautifully composed – another recognisable trademark of Square Soft, in fact.

But it seems the Japanese were most impressed by the quest – both huge and engaging, with the action-based style being a real departure for Square. And funnily enough, it seems the game wasn't quite as perfect as Japanese players were expecting – it contains a bug and can't be finished unless the player kills a certain monster. Something that's naturally been amended for the US release.

But the most innovative thing about *Secret Of Mana* is the threeplayer option. Using the Super Multitap – once the other two characters are met up with – three players can take on the huge quest, in a similar, but more sophisticated fashion to the *Dungeon Explorer* games on the PC Engine.

The Secret Of Mana is an enormous game: there are a wealth of characters to talk to and interact with, and there are loads of teleports that take you to strange new dimensions and hidden underground worlds.

For those of you who found the *Zelda* series even remotely appealing, this is one game you should definitely take a look at.

The most innovative thing about *The Secret Of Mana* is the three-player option...

Credits

Programmer: Nasir
Composed by: H Kikuta
Directed by: K Ishii
Produced by: H Tanaka





The intro sequence (above) displays the scenery in glorious Mode 7. This cannon (right) is used to blast you across to other sections of the land





Finding the sword is your first, and easiest, task (top). This is the view you get (above) after misusing the cannon. Again Mode 7 portrays all the action

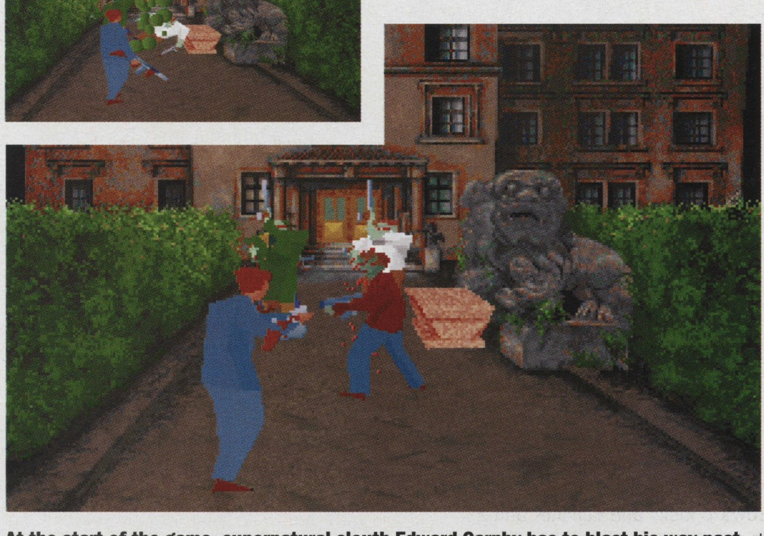
Alone In The Dark 2

A sequel to the excellent *Alone In The Dark*, was inevitable. **Edge** reports on Infogrames' new improved action RPG





Each character in *AITD2* moves in a preordained fashion as defined by the animator (top). Here a gun-toting sailor strides after you, firing his pistols and then spinning them into the air before catching them and firing again



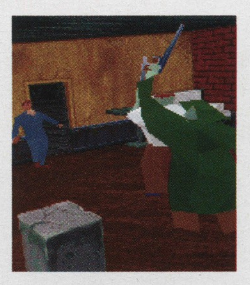
At the start of the game, supernatural sleuth Edward Carnby has to blast his way past some of One Eyed Jack's zombies. The deceased undead are spirited away (inset)

Format: **PC/PC-CD ROM**
Publisher: **Infogrames**
Developer: **In-house**
Release date: **01/94**
Size: **8 Disks/1 CD**
Origin: **France**

One of last year's visual jaw-droppers was Infogrames' *Alone In the Dark*. Using 3D vector graphics, and with cinema-style cuts from scene to scene, *AITD* won a slew of important industry awards.

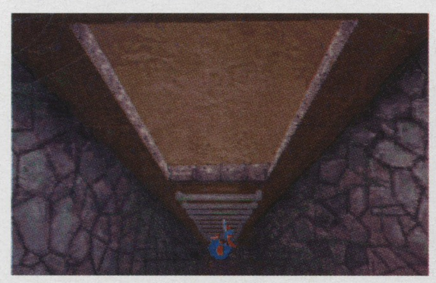
Eighteen months on, and the inevitable sequel has arrived. But, thankfully, unlike the film industry most videogame sequels are better than their predecessors – and *AITD2* is no exception. The main complaints levelled at the original were that it was small, easy to finish and that the main character was tricky to control. *Alone In The Dark 2* has pretty much solved all those problems: it's four times bigger, contains more complex puzzles and has a main character who now moves three times more quickly.

In *AITD2* Edward Carnby reprises his role of supernatural private eye, as he attempts to track down the whereabouts of his PI friend Ted



Ed gets a thorough pasting at the hands of two maniacal zombies

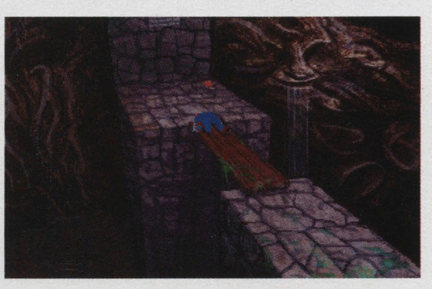
1 To show how *AITD2*'s camera system works, here's a sequence showing Ed Carnby discovering his old friend, Ted Sticker...



2 Climbing down a ladder, Ed steps on the rusty rung, which snaps off and sends him hurtling to the ground



3 Ed tumbles across the floor, coming to rest on a walkway. In a daze, he accidentally knocks his machine gun over the side





In a scene stolen from Jean Cocteau's Beauty And The Beast, Santa Cranby battles with spectral wall-mounted sword-waving arms



In the kitchen, Ed comes across a chef armed with blow-pipe. Superb animation, but it's dangerous to sit around and watch



One thing that *Alone In The Dark 2* doesn't do is pull punches. Every slap, headbutt and bullet hit is accompanied by horribly realistic sound effect and a shower of blood. Good job it's just makebelieve...

Sticker. Sticker went missing during his investigation of the kidnap of Grace Saunders, an eight yearold girl. Prime suspects are One Eyed Jack and his band of bootleggers.

Set on Christmas eve, this game is a bit of a Santa Claus meets The Krypton Factor meets Dawn Of The Dead, with a besuited hero solving puzzles and destroying zombies in a variety of grisly ways.

As well as wielding machines guns, swords and other inanimate objects (both backhand and forehand), Edward kicks and punches and also performs a mean headbutt. There's plenty of blood and it's definitely not a game for the fainthearted.

With 250 backgrounds and 80 different characters, there's around 50 hours of playing time in *AITD2*. Backgrounds now feature 2D animations to more convincingly set the scene and the camera system has been refined so that in larger rooms you have several different angles, depending upon where your character is standing. And just as you could choose to play as a man or woman in *AITD*, the sequel has the player in control of both Edward and, upon his capture, Grace – whose size means she can perform tasks that Ed could not.

Certainly the animation of all the characters is very impressive, and the camera cuts should make playing *AITD2* a very unique experience.

Every character crumples realistically to the ground before dying



Jack In The Dark is a small two-room puzzle that comes as an extra bonus for anyone buying *Alone In The Dark 2* on CD-ROM or floppy, or the original, which is being repackaged for a Christmas re-release.

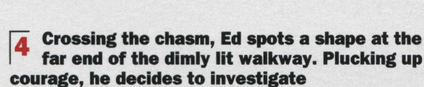
This minigame has a yuletide theme. Santa has been captured by an evil Jack In the Box and you control a girl tasked with releasing the chubby yo-ho-ho merchant. As freebies go, *Jack In The Dark* is great. E



Credits

Programmer: Franck de Girolami
Programmer: Vincent Terraillon
Graphics: Frederique Nantermet
Graphics: Sylvie Silvi
Animation: Jean-Marie Nazaret
Animation: Frederique Bourgin
Music: Jean-Luc Escalant

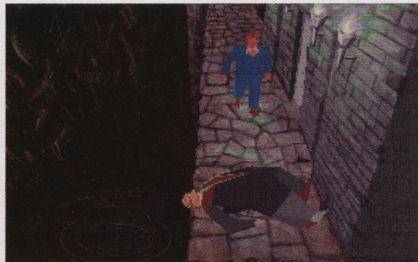
***AITD2* is a bit of a Santa Claus meets The Krypton Factor meets Dawn Of The Dead...**



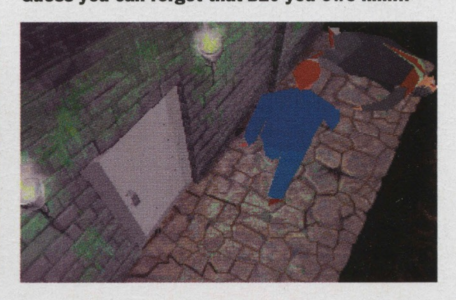
4 Crossing the chasm, Ed spots a shape at the far end of the dimly lit walkway. Plucking up courage, he decides to investigate



5 As he nears the shape, Ed recognises his old friend and private eye, Ted Sticker. Ted appears to be having a crafty kip



6 But on closer inspection it appears that Ted's sleuthing days have come to an end. Guess you can forget that £20 you owe him...



Frontier: Elite II

Format: **PC/Amiga**
Publisher: **Gametek**
Developer: **David Braben**
Release date: **November**
Size: **1 disk**
Origin: **UK**

The game that launched a thousand space ships. That was *Elite* back in 1984. Edge talked to its author about the long-awaited sequel...







Elite **fans will enjoy skimming over planet surfaces, but the effect is unfortunately let down by the crude 3D environment – the planet surfaces are jerky when fully detailed. In space, though, it's all a lot smoother, naturally. As for the texture-mapped spacecraft – they look more like they've been carpeted than anything else...**

For someone whose first game sold around three quarters of a million copies, **David Braben** is a fairly unassuming character. He's coy about the hugely successful *Elite* which started out on the BBC Micro, went 16bit, and then finished up on the NES – David's favourite version of the game.

And when quizzed about programming in general, he screws up his face in distaste. *Frontier: Elite II* has clearly been a labour of immense proportions, lasting over five years.

'I've always been very interested in Astronomy,' he claims, 'and what I always wanted *Elite* to have was a more realistic backdrop with a complicated game world on top.'

Frontier certainly has that. A detailed and painstakingly accurate representation of space has been created, and our own solar system's planets and moons accurately mapped. And as if that wasn't enough, there's true data supporting the solar systems within a 20 lightyear radius of our own sun, plus other more distant but well



The in-cockpit viewpoint includes the familiar 3D scanner, and it's still as effective



Purple ship, green exhaust, pink wallpaper... this must be the first rave space simulator



Want to be inconspicuous in deepest darkest space? Well, green leopard skin's all the rage



***Elite*'s orbital space stations are still in evidence. And though vastly improved, the graphics still look crude compared to other PC titles**

***Frontier* has no particular set goal. It's very much up to the player where they go, and what they get up to...**

known systems. Outside that, everything else is statistically calculated on the fly.

'I'm really surprised how little we really know about our galaxy' David adds. 'Many of the details in astronomy books are actually surmised. No-one knows how many planets are out there and no-one's actually spent the time to accurately map 3D space.'

So much for the realistic backdrop. What about the complicated game world? Well, in most systems the core region around the sun is highly populated, with futuristic civilisations populating many worlds. The further out you go the less civilised its gets. And it is here that the frontier worlds are located; the space equivalent of the wild west – populated by rogues, vagabonds and pirates.

There's a political level to the game, pitting a powerful civilised federation against a distant and corrupt empire. A state of cold war exists between them, so there's lots of spying and sabotage – and, so David reckons, 'more scope for the player to have fun.'

As in the first game, *Frontier* has no particular set goal. It's very much up to the player where they go, and what they get up to. Trading is now more sophisticated, but it's not the focus of the game. It's now possible to set yourself up as a space taxi, or even be hired by military corporations.

There are still sub-goals to aim for, things like *Elite* ratings, medals for successful missions etc, and you can even go for the biggest ship, in true one-upmanship-style. 'I like open-ended scenarios, where the player can pick up again at any time,' David proclaims, 'a set goal doesn't fit in with the ethos of the game. If anything, staying alive as long as possible is the goal.'

70 different missions vary from simple errand running to playing the part of an assassin and taking someone out. But if you just blow someone out of the sky, you could get caught and wind up with a criminal record. The best bet is to play it safe and choose to be a covert assassin, following your target out into space and then letting them have it where no-one can see you!

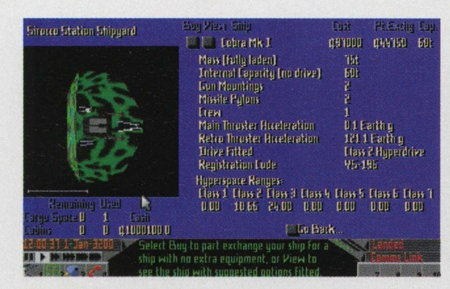
With this level of ingame detail, **Edge** was surprised to learn that the PC version of *Frontier* fits onto just one single high density disk. Pre-calculated graphics are more or less absent, and memory-hungry intros and cut scenes are completely ignored.

So why would someone deliberately avoid the things that PC owners now take for granted? David offers the

Continued next page



***Frontier*'s galactic map has moved on from the one in *Elite*. Systems are displayed in full 3D providing a genuine feeling of a space environment**



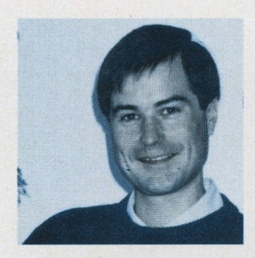
Thinking of buying a new ship? *Frontier* provides full tech specs on all the new models



This is your basic transport. Single exhaust, naff paintjob, but good fuel consumption



However the twin-exhaust Cobra is much more suited to blasting around the galaxy





Top: Veteran game designer, David Braben. Above: The original 1984 *Elite* was co-designed by Ian Bell and released on the BBC and Electron



Space stations need to be approached carefully, especially in the outer reaches of space. Pirates and space hooligans are even more rife than in the original game

explanation, 'In these days of multiple disk games, some people are bound to say 'Is that all, it must be rubbish!' I was actually under a lot of pressure to increase the number of disks, even though the game didn't need it!

'Personally, it really annoys me when people are disappointed when a game doesn't come on at least ten disks. What's the point in having so many megabytes of pre-stored graphics with only 30K allocated to the important bit – the game code?'

***Frontier* saves** a lot of disk space by generating its graphics on the fly. So the bulk of the memory is used for the game's mechanics – the gameplay – instead of for rendered images. But, realistically, *Frontier* would have benefited from some better graphics. On the PC its Amiga origins are more than apparent.

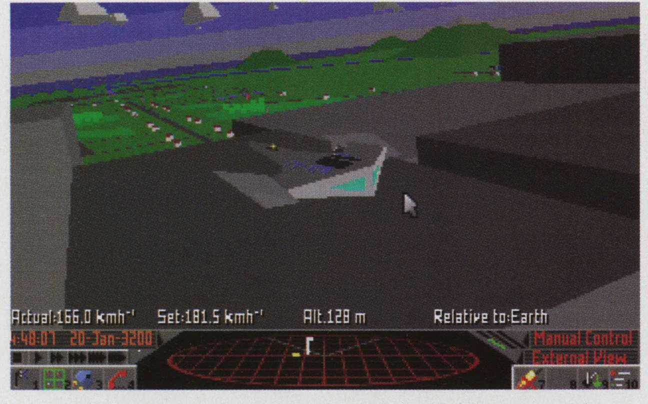
The main problem is with the texture-mapped 3D. Even on a fast 486 it's jerky, requiring the detail to be switched off for a smooth ride. And next to something like *TFX* it looks decidedly crude. On the A500, it's even slower, naturally.

The game design certainly has great potential, but without a realistic looking and varied environment, just how much interest can be sustained?

One thing that does shine, though, is the Roland music – the intro theme is eminently hummable!

Check out **Edge** four to see how *Frontier* fares.

Frontier would have benefited from some better graphics. On the PC, its Amiga origins are more than apparent...



The Amiga version of *Frontier* has no texture-mapping, so with surface detail turned off, this PC shot is what Amiga owners can expect to see

Credits

Game designer/programmer: David Braben

PC version: Chris Sawyer

Music: Dave Lowe



Docking with space stations is automatic now. None of that awkward rotating business



There are four levels of surface detail – here's what it looks like without texture-mapping



Skimming the planet surface of Mars. Atmosphere processors have turned it blue

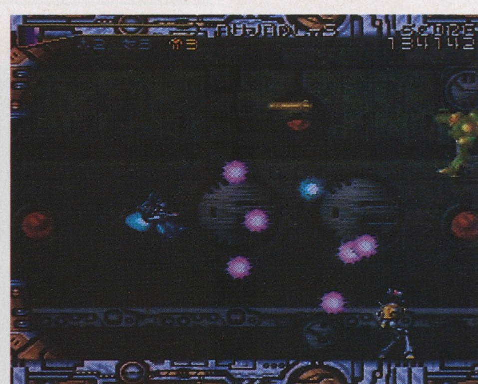
Macross:

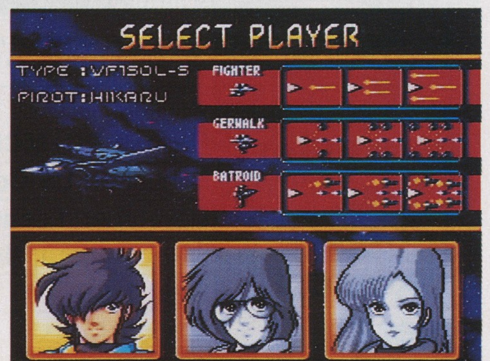
Scramble Valkyrie

Macross is a new Japanese shoot 'em up, based on the anime series. **Edge** takes an early look



Could this be the next decent *Cybernator*-style shoot 'em up to hit the Super Famicom? With graphics like these, it just might... *Macross* is based on a Japanese anime TV series





In *Macross* space ships can turn into robots (top), and here's the three characters in the game (above)

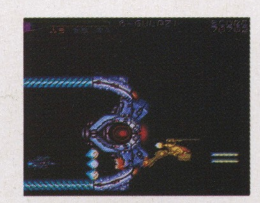
Format: **Super Famicom**
Publisher: **Zamuse**
Developer: **In-house**
Release date: **29/10/93**
Size: **8 Mbit**
Origin: **Japan**

There seems to have been something of a ceasefire on the Super Famicom shoot 'em up front recently, with the only notable release, *Darius Force*, receiving a particularly lukewarm reception. So if you can't wait until *R-Type III* comes out at Christmas, it might be worth keeping an eye out for *Macross* – a conversion of a Banpresto coin-op that appeared in Japan earlier this year.

PC Engine owners will know the *Macross* series, with a shoot 'em up and a strategy game already out on PC-E.

Macross gives you the three main characters from the show to choose from, and while there's nothing special about the weapons they've got to play with – the standard lasers, rockets, spread fire, and so on – their ships are rather handy. Each ship has three different shapes to transform into, including robotic mecha suits.

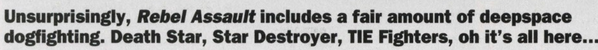
Technically, *Macross* seems a little more accomplished than much of the dross around – it looks nicer for sure, with some interesting backgrounds and sprites. Other than that there doesn't seem to be much new about it, so we can only hope *Macross* comes alive when you actually play it. E



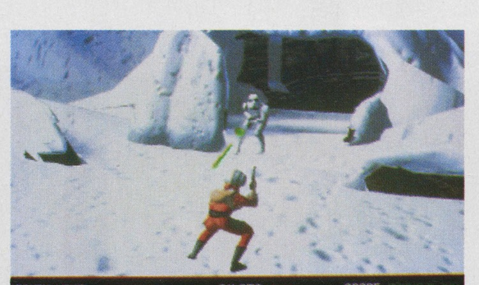
The game also has some impressive, if unsurprising, bosses

Rebel Assault

With another three movies in the pipeline and an endless stream of games, the Star Wars saga continues…



Unsurprisingly, *Rebel Assault* includes a fair amount of deepspace dogfighting. Death Star, Star Destroyer, TIE Fighters, oh it's all here…



Part of the game involves infiltrating an Imperial camp on foot. Red 5, I'm going in…



The rebel fighter's a sprite; the background is pulled off CD. Music is courtesy of John Williams

The wealth of film footage makes CD a very tempting medium

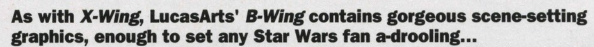
Format: **PC/MCD**
Publisher: **US Gold/JVC**
Developer: **LucasArts**
Release date: **Nov/TBA**
Size: **1 CD**
Origin: **US**

LucasArts' *Rebel Assault* is to be their first CD-only game; the wealth of available film footage and soundtracks, must make CD a very tempting medium.

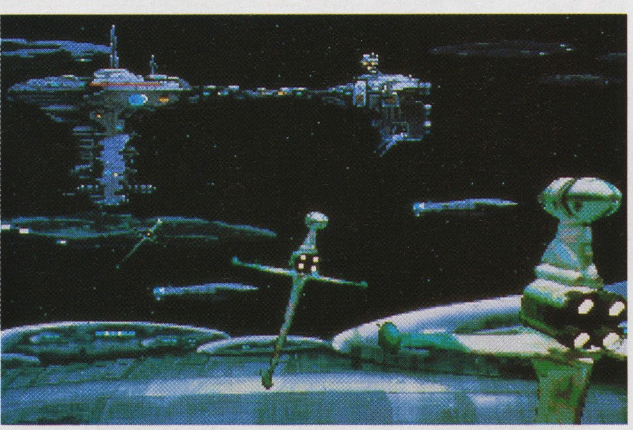
By streaming prerendered backgrounds off the CD – *Silpheed*-style – they aim to bring a cinematic feel to *Rebel Assault*'s flying sections. And by making the image larger than the screen, the player is tricked into believing they have more influence over the craft: swerve left and the scenery shifts accordingly.

However, this technical feat may be at the expense of detail: the clip **Edge** saw contained only very basic scenery.

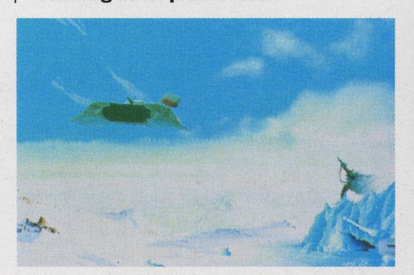
Rebel Assault is heading for PC CD-ROM, Mega CD and even CD-i. And if that isn't enough, B-Wing, the true sequel to X-Wing is approaching fast…



As with *X-Wing*, LucasArts' *B-Wing* contains gorgeous scene-setting graphics, enough to set any Star Wars fan a-drooling…



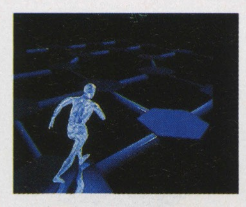
B-Wing promises to be as visually stunning as its predecessor



The Lawnmower Man

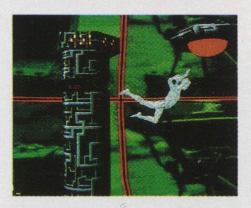
Format: **PC CD-ROM/MCD**
Publisher: **Storm**
Developer: **In-house**
Release date: **Nov/Spring**
Size: **1 CD/1 CD**
Origin: **UK**

Billed as an interactive movie, based on a Virtual Reality film, Storm's *The Lawnmower Man* had better cut it...









The cinematic-style platform section looks impressive but is handled in much the same way as *Dragon's Lair*, with sequences dragged from CD

Storm have been busily beavering away on conversions of the film that brought the idea of Virtual Reality to the attention of the public – The Lawnmower Man. Even with a clichéd storyline and some wildly esoteric special effects, the film still proved a huge success.

Storm are looking to emulate the success of the film and are putting the finishing touches to all versions. The PC CD-ROM game is the closest to being finished, and it's also looking the most impressive at this stage.

The scenario follows the plot of the film, giving you control of Dr Angelo. Jobe – a simpleton gardener – attains superhuman powers after being used as a human guinea pig in one of your Virtual Reality experiments. Something goes horribly wrong and the humble and introverted Jobe turns into a highly destructive being, and now his only intention is to take over the world via its computer networks.

But first he seeks revenge, revenge for the injustice carried out against him, and it's you he's after. Using his newly found powers 'Cyberjobe' pulls you into the VR world.

The game has you pitting your intellect against his in a series of puzzles and arcade sections. The gameplay is split into three main areas: mathematical and logical puzzles, cinematic style sections, and arcade type flying sequences.

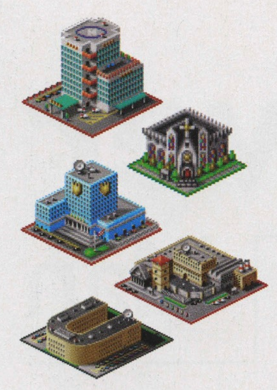
Using some stunning interactive raytraced 3D graphic sequences, the look of the film has definitely been captured. But hopefully it will play more as a game than *another* interactive movie.

The flying sections (below) provide ample opportunity for some stunning 3D cyberspace visuals

The beauty of CD-ROM is the exquisite images that can be stored. *TLM* promises to excel in that department, and if it plays well, we could be in for videogame heaven...



In one of the puzzle games (above) your moves are taken by robot pieces



SC 2000's attention to detail is stunning, as shown by this hospital, church, police station, jail and fusion reactor

SimCity 2000

Format: **Apple Mac/PC**
Publisher: **Maxis**
Developer: **In-house**
Release date: **01/94**
Size: **1 disk/1 disk**
Origin: **US**

Sim City 2000 is the latest in a long line of city-building strategy games. So why is this one so different? **Edge** explores

As your kudos grows so do the rewards... up to an enormous edifice dedicated to your greatness

American coders Maxis are really only known for one product – *Sim City* – and variations thereof. *Sim Earth*, *Sim Farm*, *Sim Ant* (for heaven's sake), have all grown from the *Sim City* seed. And now Maxis have come full circle, producing an updated version of *Sim City* which incorporates the best elements of all their previous games and improves massively upon the original.

Sim City 2000 certainly looks great on the Mac, with high resolution graphics in 256 colours. It's also now a cross between *Sim City* and *Populous*, with an isometric view and proper 3D landscape, which can be designed and altered at will. You want to populate Mont Blanc? No problem.

Given that hills and skyscrapers can obscure your view of the city beyond, you can now survey your teeming metropolis from one of four different angles. The 3D aspect also adds a lot more depth to the design disciplines: it takes cash to flatten land; you have bridges and tunnels to contend with; you can construct a subway system beneath the city; and you also have to look after the endless miles of underground water pipes.

Sim City 2000 now carries many more options for the would-be city architect. You still allocate land to industry, commerce or housing, but can now make them heavy or light, depending upon the location and personal preference.

There are now eight types of powerstation with which to keep the city humming; you can build schools,



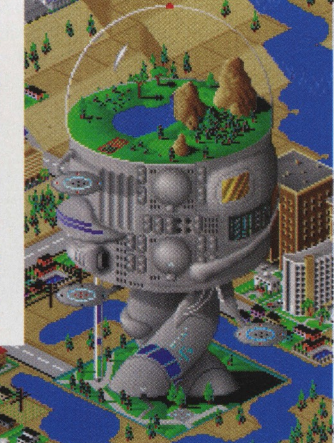
To keep the Edgeville tenants happy, they've been given a new stadium and a nice new marina (above). But they can damn well pay for it by working in the commercial zone (left) and paying their taxes...



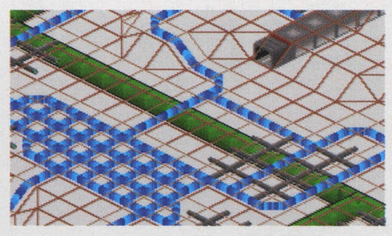
Suspension bridges not only help to link areas of your city, but also look very smart indeed



Eventually, great mayors get great big buildings dedicated to them



Arcologies are cities within cities, which also need maintaining and controlling



Beneath your city lies a tangled web of tunnels (grey), water mains (blue) and underground rail networks (green)

colleges, libraries and museums to keep the inhabitants educated; you can place parks, zoos, marinas and stadiums for entertainment; and as well as police and fire stations, you can construct prisons and hospitals for the overall safety and well-being of your people.

All the buildings are beautifully drawn, with tiny animations such as people milling around, flags flying and so on. As before, cars drive across town, trains shuttle back and forth and tiny animated aeroplanes continually plummet into your heavily populated urban areas. Sighting airports out of town is perhaps not a bad idea...

There are also rewards for being the (successful) mayor of your city. As your kudos grows, so do the rewards, starting with a plush mayoral house, through to a city hall, a statue of your esteemed self and eventually you get an enormous sculptured edifice dedicated to your greatness.

From **Edge**'s all-but-finished beta version, *Sim City 2000* certainly looks to be the business. It's far more complex than *Sim City* and so has better long-term appeal. Devotees of *Sim City* should watch out for this new release, due to hit PC and Apple Mac in the next few months.

Credits

Chief designer: Will Wright
Co-designer: Fred Hassim
Producer: Don Walters
Graphics: Jenny Martin
Manuals: Michael Bremer



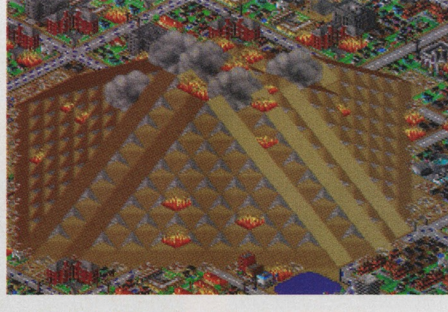




You can now design your own landscape to populate. You can plant trees, make rivers, create valleys, even raise the water level (from top to bottom)



Repeatedly make bad decisions and you run the risk of riots. Time to call your mates in the militia



One of the worst disasters is the volcano. Not only does it set fire to the surrounding area, but it's an instant hill



Should the fates decree that your city is to be ravaged by an enormous space monster, this is what you can expect. Sadly, having crossed the boundless eternities of space and time, all it wants to do is kick the crap out of your housing estates...

SSN-21 Seawolf

Format: **PC**
Publisher: **Electronic Arts**
Developer: **In-house**
Release date: **11/93**
Size: **5 disks**
Origin: **UK**

The still-in-production SSN-21 Seawolf is claimed to be the fastest, deepest diving, most heavily-armed US submarine ever. And before it has even entered full military service, EA have produced a PC sim based on its deep sea antics.

Everyone knows submarine simulations are usually dull – with little in the way of visuals and sound. Of course, with *Seawolf*, EA claims it's all different. And indeed, the game's best feature is its 16bit stereo sound. You get 100 samples, including torpedoes loading and firing, sonar pings – even a whale song. 40 varieties of surface ships and 25 submarines can be individually identified by their own unique sonar signatures.

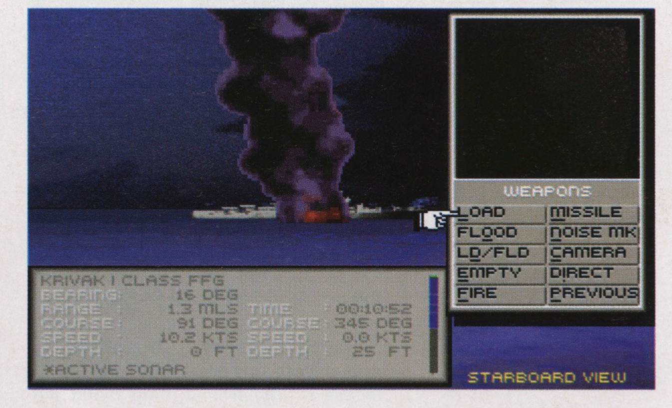
But it's a good thing that the sound is so impressive, as most of the game is played in the ship's sonar room. A shame really, as the periscope view graphics are quite nice, with storm effects and good digitised explosions.

Not a bad try, but whether those simplistic sonar graphics will be enough for would-be *Seawolf* captains remains to be seen.

The sonar room (above) may not look that exciting, but it's where all those wonderful sounds can be heard

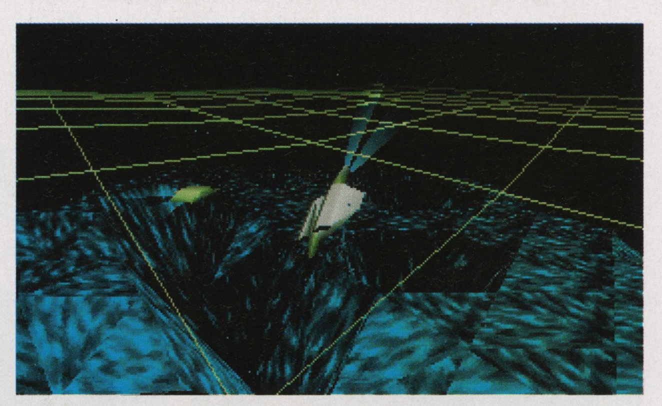


Although *Seawolf* relies on sound for in-game atmosphere, the visuals aren't too bad either (below). The Seawolf comes equipped with all latest weapons – as this enemy cargo freighter (below left) finds out



Sub Wars 2050

Format: **PC**
Publisher: **Microprose**
Developer: **In-house**
Release date: **11/11/93**
Size: **5 disks**
Origin: **UK**









The cockpit view (above right) displays your weapons and the current position of your sub. That purple 'mesh' (top) is the thermal layer. Rise above it and you're prone to radar. An enemy sub (above) prepares for its launch

Surfacing at about the same time as EA's *Seawolf*, *Subwars 2050* has adopted a slightly different approach to the sub simulation genre. Whereas *Seawolf* relies on strategy and 3D audio-imaging, Microprose's effort uses lush 3D fractal-generated underwater landscapes.

The story is as follows: in the year 2050, two major corporations discover a mineral that gives vast trading power. Understandably, both companies wish to control as much underwater activity as possible. And that's where you come in. You join the game as a trainee submarine pilot/mercenary, and either company is willing to pay large amounts of money for your services.

Missions range from cutting off the competitor's fuel supply, to improving the image of your corporation by saving stranded whales or – bizarrely – helping pregnant dolphins give birth.

The 3D graphics are the game's strongest point, and visually this game blows *Seawolf* out of the water. There's some interesting, if unusual, gameplay in there, too.

A stranded seaman needs saving from a watery grave (above). Braving the conditions your sub accepts the challenge. First you must attempt to squeeze through a crevice in the sea bed



PC Screen shot



AMIGA Screen shot



PC Screen shot



AMIGA Screen shot

DAVID BRABEN PRESENTS

FRONTIER

ELITE II

1985 – ELITE

"Elite. Game? It's a way of life!"

Personal Computer World magazine

1993 - FRONTIER - ELITE II

"The ultimate in space adventure, Frontier is the single most important step forward for games this decade."

CU Amiga – 97%

only the very best mature with time

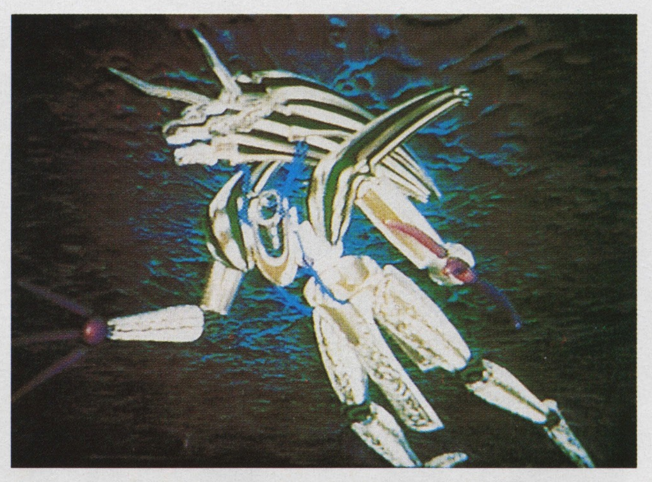


GAMETEK

Available on PC, AMIGA, ATARI ST

Pyramid Patrol

Format: **LaserActive Mega LD**
Publisher: **Taito**
Developer: **In-house**
Release date: **Out now**
Size: **1 LD**
Origin: **Japan**



Of course you could take the view that the splendour of those rendered graphics make up for it. Great robotic pharaoh, too.



The first LaserActive game looks great. Gorgeous even. But how much gameplay can ever be realistically bolted onto a demo like this?

Laser Disc games... 'what an utterly sexy prospect' you might be tempted to think. On the other hand, if you're the kind of clued-up player who understands the drawbacks of full-motion video, you might take an altogether different viewpoint. Something like 'what a load of baloney' perhaps. Either way, Taito has the first Mega LD game in Japan for Pioneer's LaserActive system, and it seems early fears about the system's credibility have been confirmed by the shallow nature of the first release.

Imagine another *Silpheed* – remember, Game Arts has managed this style of non-interactivity better than most – but with a stunning rendered backdrop in place of all those lovely polygons. Now, bung a silly prestored 3D Mega Drive shoot 'em up on the top of it, with – get this – no collision detection with the backdrop, and that's *Pyramid Patrol*.

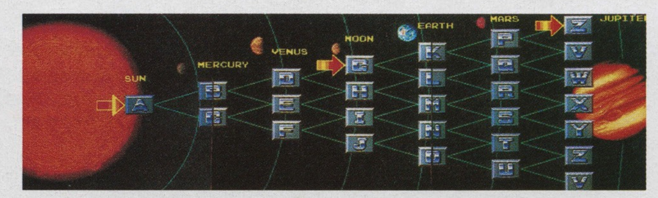
Better cancel that LaserActive for the time being, eh?



Now imagine all this in real time. Wouldn't it be great?

Super Darius II

Format: **PC Engine Super CD-ROM²**
Publisher: **NEC Avenue**
Developer: **AWave**
Release date: **December**
Size: **1 CD**
Origin: **Japan**



The graphics aren't looking bad – considering the game's age

One of the greatest shoot 'em ups for the PC Engine was NEC Avenue's *Super Darius* from 1990. It was a masterpiece of PC Engine programming, and high hopes are held for the sequel.

The only foreseeable problems are, a) the game is getting on a bit – the Mega Drive version (admittedly a bit crummy), has been out for a few years now, and b) NEC Avenue seem to have got bored with the project and freelanced it out to developers AWave who have a less than perfect track record. Ah, things don't look so rosy now do they? Let's just hope the December release holds – it's been rescheduled more times than British Rail's Newport to Bath service. And that's going some.



All 27 levels from the *Darius II* (*Sagaia*) coin-op are included in *Super Darius II* (top). And the robotic sea creatures are still as imaginative (above)

3DO Scene

Edge takes a look at the games now in development for the 3DO Multiplayer

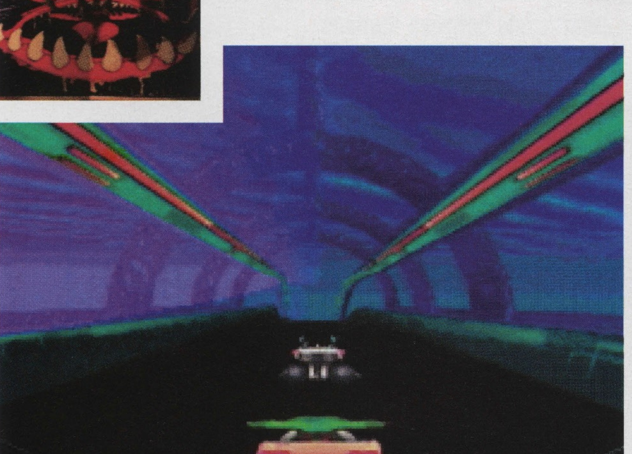
The 3DO Company claimed there'd be 10 titles available to coincide with the roll-out of Panasonic's REAL players in early October. But in reality it wasn't to be.

Admittedly the lack of software wasn't quite as embarrassing as the Commodore's CD32 fiasco – the inclusion of Crash 'n Burn meant you could actually play *something* – but a base of decent games will certainly take some time to be established.

With over a hundred titles currently being developed, here's a brief look at some of the more interesting stuff currently on the 3DO horizon...



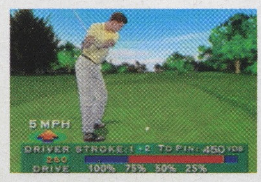
Texture-mapped graphics like *Road Race*'s are already a standard feature of 3DO games. Hopefully, not at the expense of speed, though

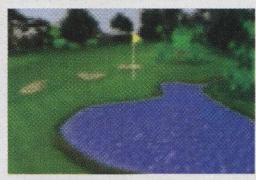


***MegaRace* – Cryo's futuristic racing game, with rendered graphics pulled straight off the CD. But don't let that put you off just yet. Crystal Dynamics' third game is a fantasy-style adventure called *The Horde* (inset)**



Naturally, one of EA's most anticipated titles is *Road Rash*. Early ingame demos might not have been that impressive but it certainly has time to improve – it's not expected until spring 1994. The presentation is already pretty outstanding, though





***PGA Tour Golf* has the potential to be a big seller. The early graphics look great**

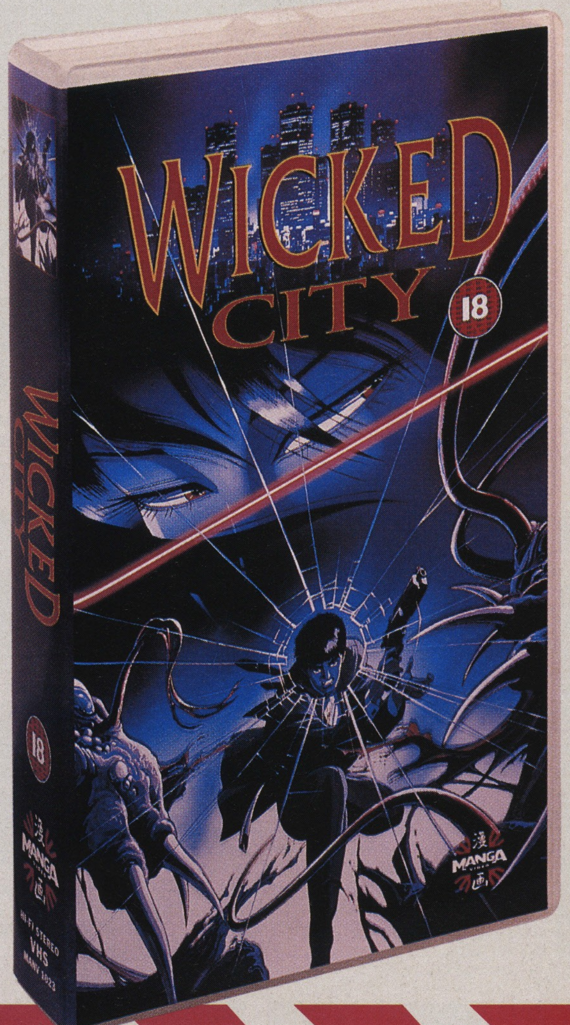


MCA's conversion of *Jurassic Park* is still in its early stages and being handled in-house at The 3DO Company. The film's soundtrack will also be included



***Red Baron*, Dynamix's 3DO. effort. Let's hope it's better than the Amiga version...**







WICKED CITY

As the non-aggression treaty that exists between humans and the world of the demons nears its expiry date, a plague of fiendish terrorists descends upon the city, conspiring to sabotage any new agreement. As the shadows close in, the fate of humanity is in the hands of a group of undercover operatives, known as the Black Guard.



£12.99 SRP

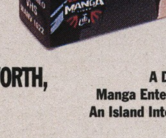
BATTLES, BETRAYAL AND BLOODSHED

THE HEROIC LEGEND OF ARISLAN PART II

Driven out from his homeland of Pulse, by the powerful Lusitanian army, the young prince Arislan is determined to regain his throne. But as events unfold, Arislan is forced to question the legitimacy of his claim to the Pulsean throne. Can there be any truth in the wild claims of Silver Mask?

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BOTH AVAILABLE AT VIRGIN, HMV, WH SMITH, OUR PRICE, VIRGIN GAMES, JOHN MENZIES, GAME LTD, FUTURE ZONE, WOOLWORTH, TOWER RECORDS, FORBIDDEN PLANET, BEATTIES OF LONDON, VIRTUAL REALITY AND ALL GOOD VIDEO AND COMIC SHOPS.



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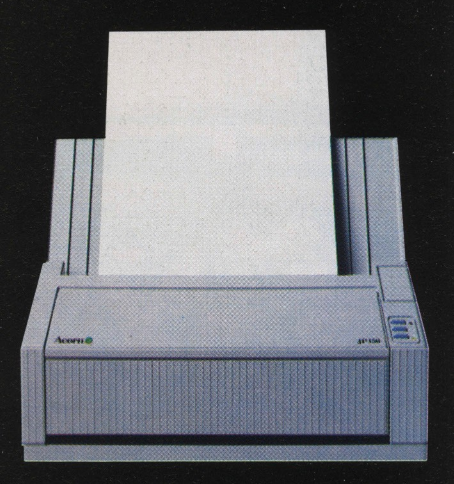


Photography: **Cameo Photography**

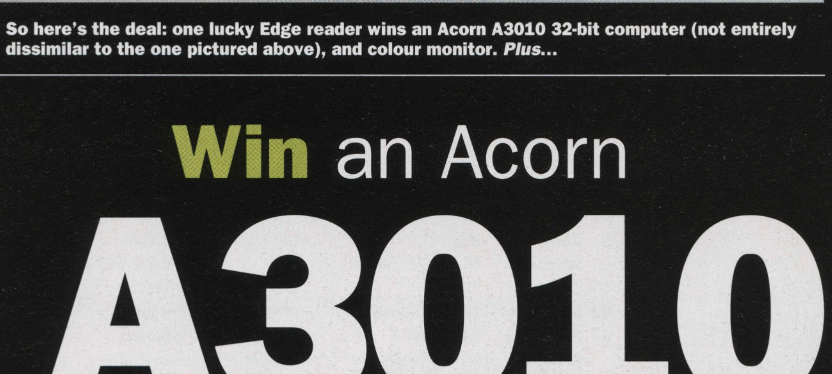
So here's the deal: one lucky Edge reader wins an Acorn A3010 32-bit computer (not entirely dissimilar to the one pictured above), and colour monitor. *Plus...*



... The Acorn Action Pack containing *Zool*, *Lemmings*, *Chuck Rock* and more. Plus...



... An Acorn JP150 printer with which to, well, print things out. £900's worth or what?



Win an Acorn A3010

Acorn's new A3010 games bundle should be hitting the shops soon. But, for the price of a stamp, **Edge** readers can win one for nothing

Acorn Computers have donated an Acorn A3010 computer for **Edge** to give away to its readers. Well, as you can imagine, **Edge** would prefer to hold on to the aforementioned hardware and play *Zool* on it. But, honour bound as we are, here's what the potential winner must do:

David Braben (whose new project is featured on page 26) coded the first commercial game for Acorn's 32bit machine – the then Archimedes. What is the name of that game?

Write your answer on the obligatory postcard or sealed envelope and include your name and address. Adhere a stamp and send it to: **Acorn Competition, Edge, 30 Monmouth Street, Bath, Avon BA1 2BW**, to arrive by December 1 – or the goat gets it.



Smallprint: Let's face it: anyone who works for Acorn Computers or Future Publishing doesn't *need* an A3010, so leave your entries at home, eh? **Edge**'s decision (however flawed or inconsistent it may appear) is final. Once the prizes have been issued, no further correspondence will be entered into, so don't bother trying

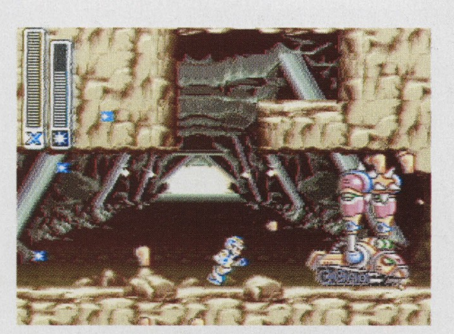
Aladdin **Lethal Enforcers** Sonic Spinball **Winter Olympics** Super Darius II **Subwar 2050** Top Racer 2 **Fatal Fury Special** The 7th Guest **TFX** Lamborghini **Rockman X** Brian The Lion **B-Wing** Art Of Fighting 2 **Wolf Pack** Tecmo Super Bowl **Terminator Rampage** Caesar's Boxing



Edge's unique multiformat release schedule, covering the entire world of videogaming



Teenage Mutant Ninja Turtles: Tournament Fighters **– hardly the most original concept in the world. So will Konami's reputation be tainted by this blatant *SFII* rip-off?**



Rockman X**, to be known as *Mega Man X* in the US & UK, should be just as successful on the Super Famicom as it was on the NES...**

E - Early, M - Middle, L - Late

Date	Game Title	Type	Publisher	Country
Super NES				
29 October	Art of Fighting	combat	KAC	Japan
05 November	SFII Turbo	combat	Capcom	UK
09 November	Street Fighter II Turbo	combat	Capcom	UK
12 November	Solstice II	platform	Epic	Japan
12 November	Yoshi's Safari	super scope	Nintendo	UK
19 November	Yoshi's Safari	super scope	Nintendo	UK
26 November	Sunset Riders	shooting	Konami	UK
M November	Might And Magic II	RPG	Elite	UK
- November	Sunset Riders	action	Konami	UK
- November	Zombies	action	Konami	UK
19 November	Ys IV	RPG	Tonkin House	Japan
- November	Cool Spot	platform	Virgin	Japan
- November	J-League Cup Soccer	sports	Jaleco	Japan
- November	Fatal Fury 2	combat	Takara	Japan
L November	Fire Emblem	RPG	Nintendo	Japan
November	GP1	racing	Atlus	UK
- November	Shadowrun	RPG	Beam	UK
- December	Cool Spot	platform	Virgin	UK
E December	Lamborghini	racing	Titus	UK
26 November	Super HQ	racing	Taito	Japan
26 November	Aladdin	platform	Capcom	Japan
1 December	FF Mystic Quest	RPG	Square Soft	UK
1 December	Plok	platform	Trade West	UK
1 December	Aladdin	platform	Capcom	UK
1 December	FF Mystic Quest	RPG	Square Soft	UK
02 December	Plok	platform	Nintendo	UK
03 December	**TMNT Tournament**	**combat**	**Konami**	**UK**
17 December	**Rockman X**	**platform**	**Capcom**	**UK**
- December	Pro Baseball '94	sports	Epic/Sony	Japan
- December	R-Type III	shooter	Irem	Japan
- December	Romancing Saga 2	RPG	Square Soft	Japan
- December	Human Grand Prix	racing	Human	Japan
- December	Ganbare Goemon 2	adventure	Konami	Japan -
- December	Art Of Fighting 2	combat	SNK	Japan
- December	Dragon Ball Z 2	combat	Bandai	Japan
- December	Super F1 Hero 2	racing	Varie	Japan
- December	Top Racer 2	racing	Kemco	Japan
- December	Dragon Quest I.II	RPG	Enix	Japan
- December	Lethal Enforcers	light gun	Konami	Japan
- December	Tecmo Super Bowl	sports	Tecmo	US
- December	Rushing Beat	combat	Jaleco	Japan
- December	Super J-League Soccer	sports	Jaleco	Japan

NOTE: Companies' release schedules are often about as reliable as a British Rail timetable

E - Early, M - Middle, L - Late

Mega Drive/Mega CD

Date	Game Title	Type	Publisher	Country
- November	Battle Mania	action	Vic Tokai	Japan
12 November	John Madden '94	sports	Electronic Arts	UK
15 November	Wiz 'n' Liz	action	Psygnosis	UK
15 November	Puggsy	platform	Psygnosis	UK
19 November	Lethal Enforcers (CD)	light gun	Konami	UK
26 November	TMNT Fighters	combat	Konami	UK
26 November	Puggsy (CD)	platform	Psygnosis	UK
26 November	Microcosm (CD)	shooting	Psygnosis	UK
26 November	Beast 2	action	Psygnosis	UK
- November	Sonic Spinball	pinball	Sega	UK
- November	Instruments of Chaos	action	Sega	UK
- November	Silpheed	shooting	Game Arts	UK
- November	Spiderman vs Kingpin	action	Sega	UK
- November	Robocop vs Terminator	action	Virgin	UK
- November	Gauntlet 4	action	Tengen	UK
- November	Rugby	sports	Domark	UK
- November	F1	racing	Domark	UK
- November	Terminator (CD)	action	Virgin	UK
- November	Chuck Rock 2	platform	Core Design	UK
3 December	Lethal Enforcers	light gun	Konami	UK
6 December	James Pond 3	platform	Electronic Arts	UK
10 December	Virtual Pinball	simulation	Electronic Arts	UK
10 December	Zool	platform	Electronic Arts	UK
- December	Fantasy Star IV	RPG	Sega	Japan
- December	F1 Circus CD	racing	Nihon Bussan	Japan
- December	Pop 'n' Land	RPG	Sega	Japan

PC Engine/Super CD-ROM² (H = HuCard)

Date	Game Title	Type	Publisher	Country
29 October	Dracula X	platform	Konami	Japan
19 November	Sword Master	RPG	Right Stuff	Japan
26 November	Monster Maker	RPG	NEC Avenue	Japan
- November	PC Cocoroon	action	Wave	Japan
10 December	Bomberman '94 (H)	action	Hudson Soft	Japan
17 December	Martial Champions	combat	Konami	Japan
18 December	Fatal Fury 2 (18M CD)	combat	Hudson Soft	Japan
22 December	Ys IV	RPG	Hudson Soft	Japan
- December	Super Darius II	shooter	NEC Avenue	Japan
- December	Emerald Dragon	-	NEC Avenue	Japan
- Undecided	Marble Madness (H)	puzzle	Tengen	Japan
- Undecided	Super Fantasy Zone	shooter	NEC Avenue	Japan
- Undecided	Strider (CD-ROM²)	platform	NEC Avenue	Japan
- Undecided	Galaxy Force II	shooter	NEC Avenue	Japan
- Undecided	Mega Twins	action	NEC Avenue	Japan
- Undecided	Hellfire (H)	shooter	NEC Avenue	Japan
- Undecided	N. Warriors (CD-ROM²)	action	NEC Avenue	Japan
- Undecided	Gods	action	NEC Avenue	Japan

Neo Geo

Date	Game Title	Type	Publisher	Country
- November	Fatal Fury Special	combat	SNK	UK/Jap
- December	Top Hunter	shooter	SNK	UK/Jap
- January	Art Of Fighting 2	combat	SNK	UK/Jap
- Undecided	Magician Lord 2	action	Alpha	UK/Jap
- Undecided	Reactor	combat	SNK	UK/Jap

PC

Date	Game Title	Type	Publisher	Country
4 November	Iron Helix (CD)	simulation	Microprose	UK
11 November	Subwar 2050	simulation	Microprose	UK
15 November	Strike Commander (CD)	simulation	Electronic Arts	UK
19 November	Syndicate disc 1	strategy	Electronic Arts	UK
- November	Silverball	pinball	Team 17	UK
- November	Terminator Rampage	action	US Gold	UK
- November	B-Wing	simulation	US Gold	UK
- November	Pebble Beach	sports	US Gold	UK

PC continued

Date	Game Title	Type	Publisher	Country
- November	Wolf Pack (CD)	simulation	US Gold	UK
- November	Commanche Disk 2	simulation	US Gold	UK
- November	Dungeon Hack	RPG	US Gold	UK
- November	Sam & Max	adventure	US Gold	UK
- November	Rebel Assault (CD)	action	US Gold	UK
- November	The Elder Scrolls	RPG	US Gold	UK
- November	King Maker	RPG	US Gold	UK
- November	T2 (coin-op)	shooting	Virgin	UK
- November	Mortal Kombat	combat	Virgin	UK
- November	TFX	simulation	Ocean	UK
- November	TFX (CD)	simulation	Ocean	UK
- November	Star Trek:J Rights	adventure	Interplay	UK
3 December	Victory At Sea	simulation	Electronic Arts	UK
7 December	Ultima 8	RPG	Origin	UK
- December	Star Trek (CD)	adventure	Interplay	UK
- December	Armoured Fist	simulation	US Gold	UK
- December	Delta V	action	US Gold	UK
- December	Winter Olympics	sports	US Gold	UK

Amiga

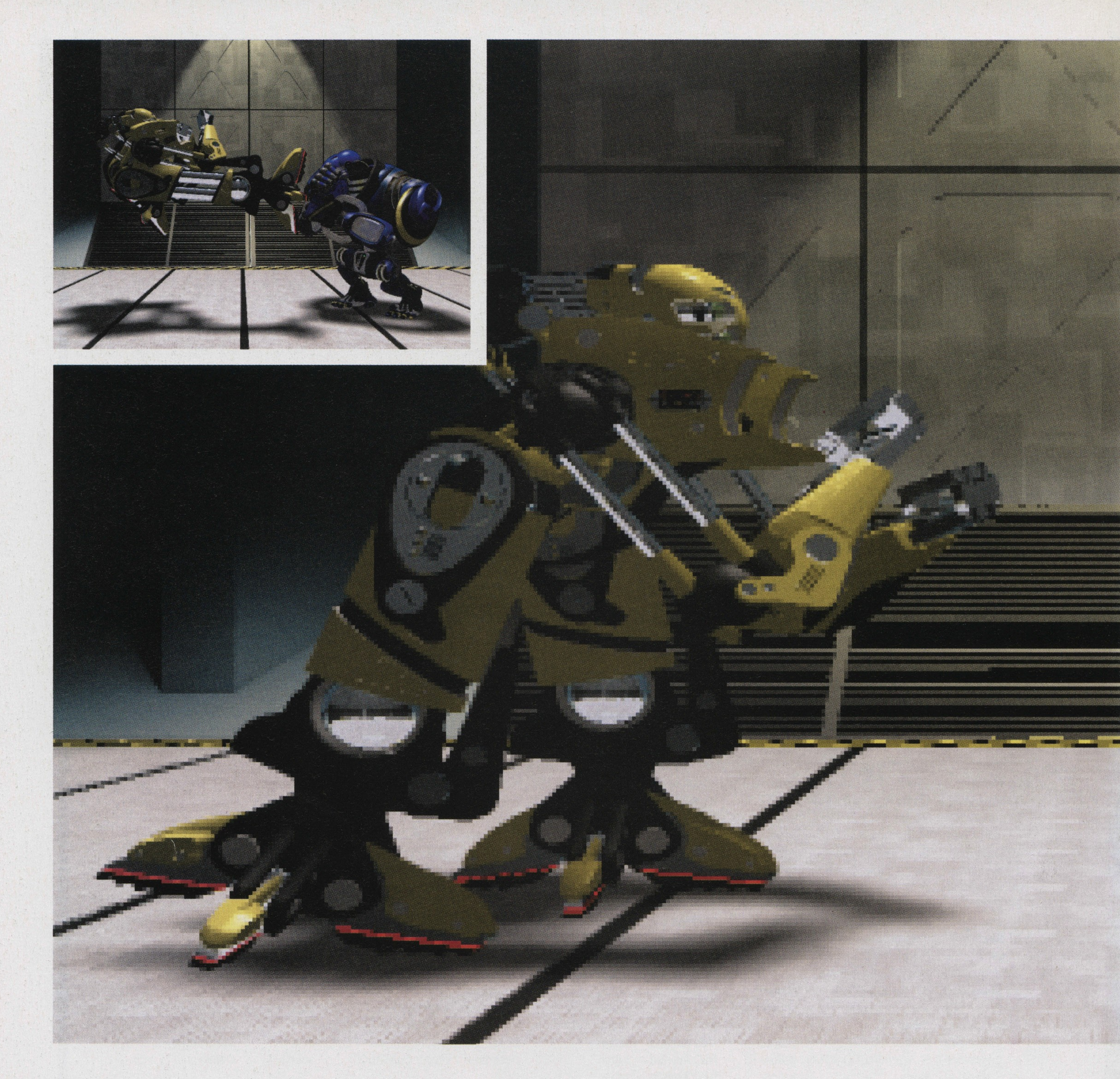
Date	Game Title	Type	Publisher	Country
4 November	F117a	simulation	Microprose	UK
12 November	Wiz 'n' Liz	action	Psygnosis	UK
12 November	Perehelion	action	Psygnosis	UK
19 November	Innocent	adventure	Psygnosis	UK
19 November	Brian the Lion	platform	Psygnosis	UK
26 November	Benefactor	action	Psygnosis	UK
26 November	G2	action	Psygnosis	UK
26 November	Second Samurai	action	Psygnosis	UK
- November	Cyber Punks	action	Core Design	UK
- November	Apocalypse	shooting	Virgin	UK
- November	Cannon Fodder	action	Virgin	UK
- November	Mortal Kombat	combat	Virgin	UK
- November	T2 (coin-op)	shooting	Virgin	UK
- November	Burning Rubber (A1200)	racing	Ocean	UK
- November	Ryder Cup (A1200)	sports	Ocean	UK
- November	Ryder Cup (CD32)	sports	Ocean	UK
- November	Mr Nutz (A1200)	platform	Ocean	UK
- November	Mr Nutz (A600)	platform	Ocean	UK
- November	Wonderdog	platform	Core Design	UK
- November	Assasin Spec. Ed	platform	Team 17	UK
- November	Star Trek (A1200)	adventure	Interplay	UK
- November	Creepers	action	Psygnosis	UK
- December	Darkmere	RPG	Core Design	UK
- December	Bubba 'n' Stix	action	Core Design	UK
- December	Ryder Cup (A500)	sports	Ocean	UK

CD-i

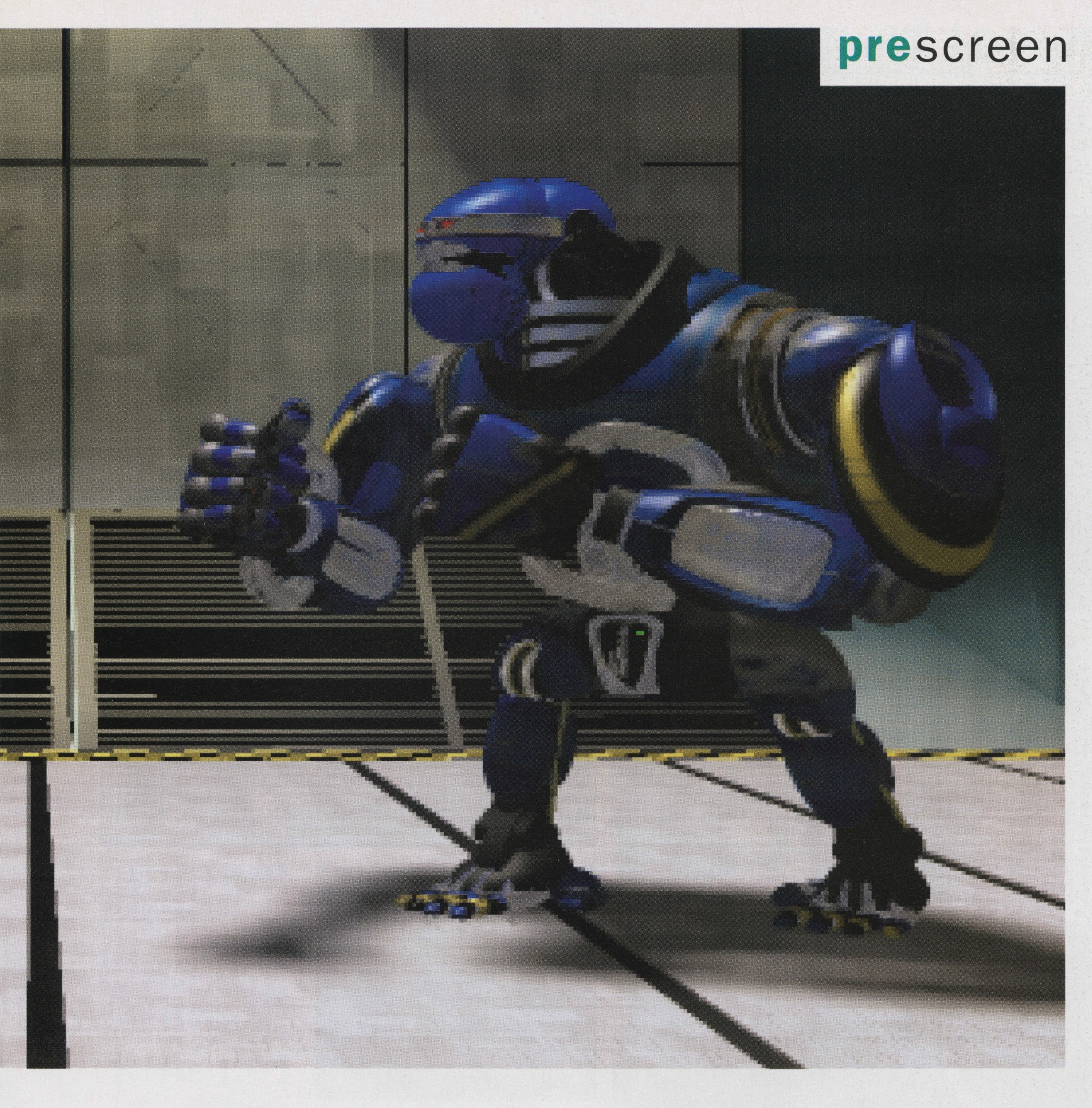
Date	Game Title	Type	Publisher	Country
- November	Joy Of Sex	self-help	Philips	UK
- November	The 7th Guest	adventure	Philips	UK
- December	Caesar's Boxing	sports	Philips	UK
- December	Kether	action	Philips	UK
- Undecided	Microcosm	shooter	Philips	UK

Magazines

Date	Game Title	Type	Publisher	Country
11 November	PC Gamer	PC	Future	UK
11 November	Super Play	SNES	Future	UK
11 November	Sega Power	SEGA	Future	UK
18 November	Amiga Power	Amiga	Future	UK
18 November	GamesMaster	multiformat	Future	UK
25 November	TOTAL!	Nintendo	Future	UK
25 November	MEGA	Mega Drive	Future	UK
25 November	PC Format	PC	Future	UK
25 November	**Edge** 4	multiformat	Future	UK



Rise of the Robots



Rise Of The Robots is Mirage's stunning new PC and Amiga beat 'em up, also destined to grace Mega Drive and SNES screens. Is this just another *Street Fighter* clone, or really the one to take the beat 'em up into the next generation? **Edge** reports

Mirage's new in-house development team – Instinct Design – are boldly attempting to take the beat 'em up genre a stage further. And their effort, *Rise Of The Robots*, looks set to grab the software industry by the scruff of its neck and give it a good old shake.

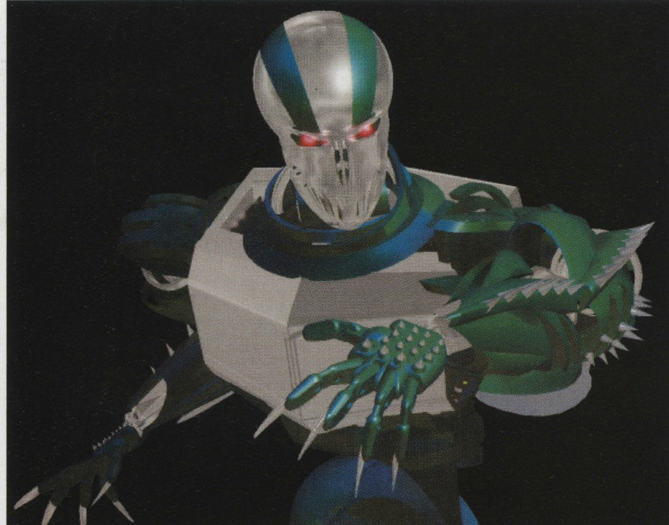
Ex-Bitmap Brother **Sean Griffiths** leads a team of five coders working on *Rise Of The Robots*. He's confident that the product will be highly regarded for many reasons: 'It's not a conventional beat 'em up. We're using robots that fight and act unusually, with a very high level of artificial intelligence that has never been seen

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Rise Of The Robots: the characters

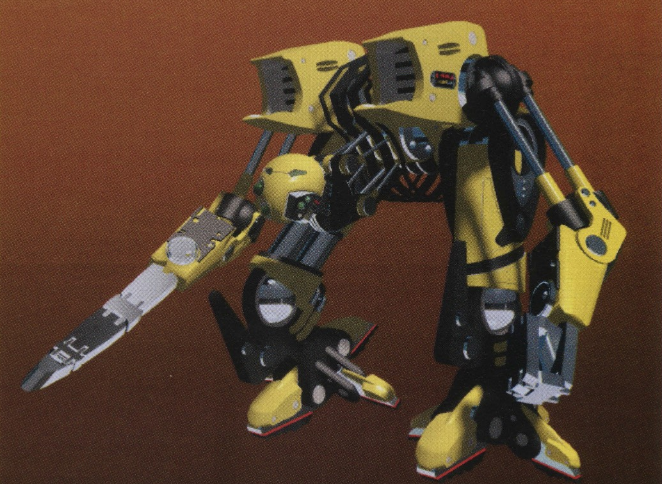
Rise Of The Robots plays host to some of the most brilliantly designed characters ever to appear in a beat 'em up. Each of the metallic combatants has its own distinct style of fighting and a series of special moves. In twoplayer mode you choose any character you like (except the Supervisor) but there's no same character vs character option. Maybe this has been left out for a *Champion Edition*, eh?

This faceless character is the Cyborg you control in one player mode (below). Half man, half machine, he was the most difficult of all the robots to create because of his sculptured physique. To start with he looked rather like Robocop, but he soon took on his own personality. The Soldier (bottom) has been a top secret project at Electrocorp, and he's purely a war machine



This Combat droid was built just for unarmed encounters (below). It uses traditional fighting moves which comes as no surprise – it was designed by the Japanese division of Electrocorp. The loader (bottom) was the first robot, but it still packs a hefty punch

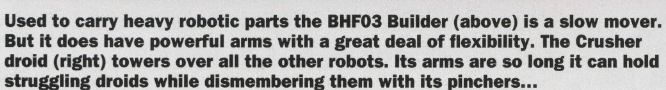




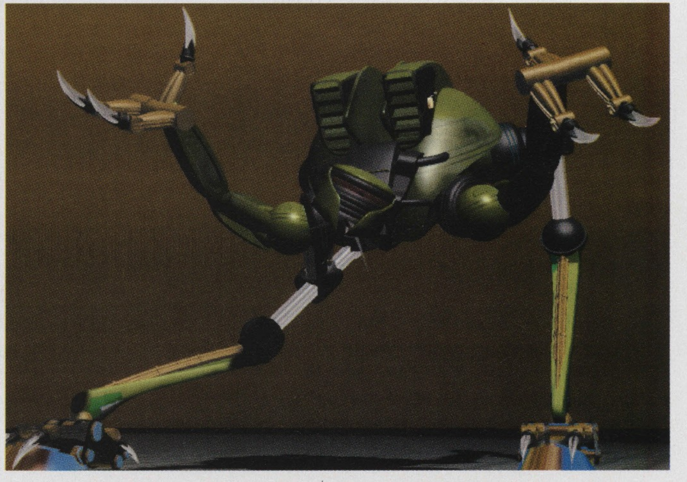
Built from a new kind of metal, polymetamorphic titanium alloy, the Supervisor (below) is most definitely a one-off droid. It's a product of the Electrocorp research and development division and has some very unusual attributes. By adjusting the flow of electrical charge it can change its shape and mould into any form – as though it were liquid. Special moves include melting to avoid punches and forming anvils and spikes for hands







Used to carry heavy robotic parts the BHF03 Builder (above) is a slow mover. But it does have powerful arms with a great deal of flexibility. The Crusher droid (right) towers over all the other robots. Its arms are so long it can hold struggling droids while dismembering them with its pinchers...





Photograph: Adrian Ford

Kwan Lee, the man behind the interior scenes in *Rise Of The Robots*, was recruited – in spite of his lack of experience of *3D Studio* – because of his professional interior design skills...

before. We'll definitely have one over on *Street Fighter II*.

'It's inevitable that people are going to compare any one-on-one beat 'em up to *Street Fighter II*, but after people see *Rise* they will see it's nothing like *Street Fighter*.'

True, it 'looks' nothing like *Street Fighter*, and if graphics alone could sell a game *Rise* would sell by the bucketload – the fully rendered visuals are simply breathtaking. Autodesk's *3D studio* was used to do everything – and it shows. The initial game design was based around two robots fighting and it didn't use rendered images. Sean and team were really concentrating on making the opponents hard to beat, using artificial intelligence to make interesting fights. Then they came upon rendered technology. So they just put the two together.

The game has a very cinematic look to it. In between fights a fully animated sequence sets up the next part of the story. According to Sean, that was also part of his original concept. 'I wanted to do an interactive movie type game, but I wanted to make a good game out of it, as opposed to having brilliant images and a dire game.'

The design of the robots was left to the relatively inexperienced **Sean Naden**. Griffiths wanted someone who'd have a totally fresh outlook to this kind of work

Photograph: Adrian Ford

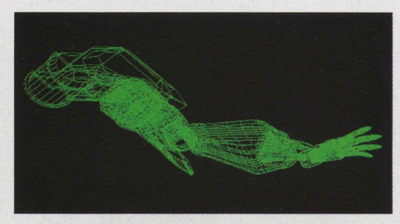
Sean Griffiths, ex-member of the Bitmap Brothers, headed the team of five programmers working on *Rise Of The Robots*

'It's not a conventional beat 'em up. We're using a lot of artificial intelligence... We'll definitely have one over on *Street Fighter II*'

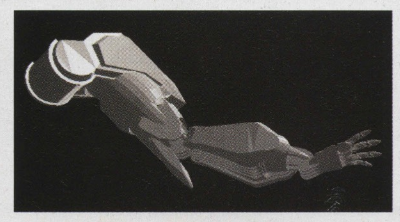
Sean Griffiths, Designer

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Robotic rendering



Step One: To create the robots and different parts of the anatomy Sean first had to create a 'mesh'. This is built up from hundreds of circles and spheres which are stretched to create the desired shape. After their construction, Sean can begin working out the animation routine.



Step Two: The next stage is the building stage. The surface is coloured to create a true 3D image. The rendered graphic now starts to take shape but, according to Sean, the finished rendered image looked 'too clean' so, the image went through a final texture mapping stage.



Step Three: Detailing the rendered image was the next step. Sean created a 2D texture map and added colour and detail in order to make the robots look less perfect. This texture map was then wrapped around the model in a variety of ways to create the finished limb.



Step Four: And here he is, the finished Fighter in all his rendered glory. Now all that's left to do is to animate him...

So much work went into rendering the robots and implementing them, that an unusual stance for all the robots was a must to ensure that all the graphics would be seen. Notice how the Cyborg (above) stands side on, but yet all his body is still visible. The shadow effect is very impressive but unfortunately it may have to be lost in the final version due to memory restrictions. Each robot is hoped to have 100 frames of animation to complete the 'real' look

and not have any preconceived ideas. Naden optimistically responded to an add in the local job centre and got an interview. Griffiths sent him away for the weekend with a simple brief: design some kickass robots. Naden's ideas appeared to be on the save wavelength as Griffiths, and he was duly welcomed onto the team.

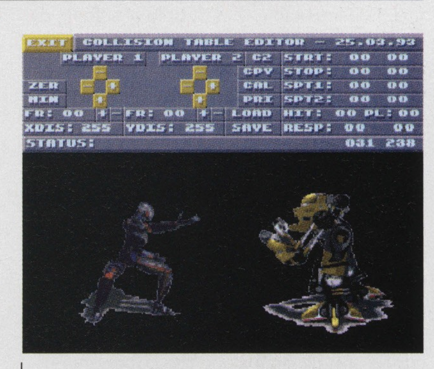
Naden started creating the robots in conjunction with Griffiths. All the robots began their life as a 'mesh' frame which was created using spheres and tubes. Certain bits then had to be cut up, rescaled and stretched to create the desired look. The Cyborg is the most complex because of his muscular physical appearance – the other final robots aren't as contoured because they're more automated. Naden studied muscle magazines in order to create the Cyborg's believable anatomy.

In creating the robots, Sean explains, the team ran into a few problems, 'We found that as we were building the robots they appeared too perfect – rendered images are too clean. We wanted to create a real world, so the next stage was to texture-map the objects. We took a texture map and added colour and detail, and then stretched it around the shape to give it that extra level of detail.'

Photograph: Adrian Ford

Sean Naden, co-designer with Sean Griffiths of all the robots. He got the job from an ad in the local job centre...

'As we were building the robots, we found that they appeared too perfect... so the next stage was to texture map them all' Sean Naden, 3D Modeller



Tables detailing every characteristic ensure that each of the robots knows how to fight. Here the data is being collated into a table

The graphics

in *Rise* may look impressive, but the game is also a bit of a mover. In the final version each robot is expected to have up to 100 frames of animation, and a key frame system has been used to ensure the fluidity of movement.

This is a very simple yet very effective way of bringing rendered images to life. A frame is drawn at the start of a certain movement, for example a punch, and another frame at the end. The computer then interpolates the frames, giving a full action movement. The smoothness of the

image can be adjusted by adding frames in between the two points. Sean explains, 'We were looking for 10 frames for each movement, but it's really five frames forward, and the same five frames backwards to make it look smooth.' A similar technique was used to create the animated cut scenes, which are full of swooping camera angles.

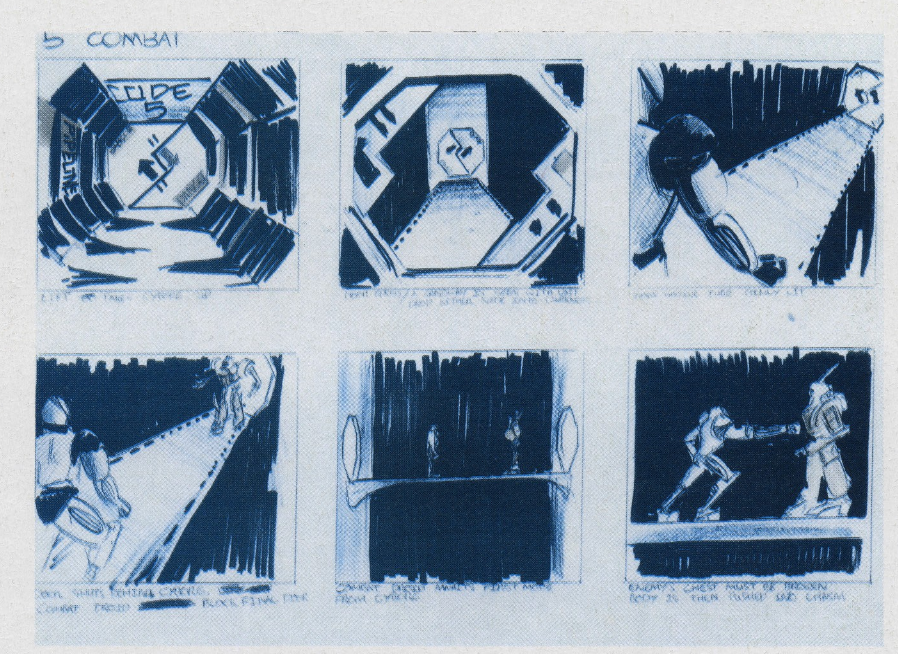
The actual robots take up so much memory that the images have to be constantly cut up as sprites, squashed up and packed down. Each robot for the PC version will take up to 1·5 meg of memory – this has been drastically cut down to only 200K for the Amiga version, but the images still remain impressive.

PC programmer and martial arts expert **Gary Leach** was called in to perfect the robot fighting movements. His martial arts experience proved vital in detailing certain moves. For example, he'd say that more snap was required in a particular punch or more hip movement was needed when delivering certain kicks. But however much they studied real-life fighting it couldn't always be converted for figures with hydraulic legs and arms.

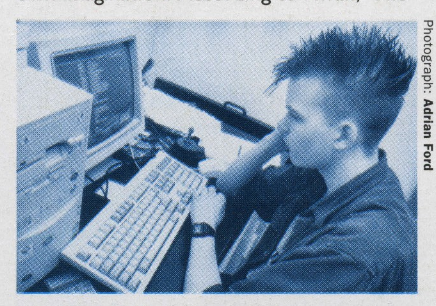
It took two months to fully render and animate a robot, and an unusual viewpoint was used for all the figures. According to Sean, 'We spent such a long time building the robots that we've had to go for an unusual angle so the player gets to see the whole robot. We used a 'grey screen' technique which is similar to blue screen for films, so we were able to generate a synthetic actor, cut him out and then paste him on the background.'

The backgrounds were also designed to be a big part of the game, and the Instinct crew took on a pro to help them out with them. **Kwan Lee**, a freelance interior designer, responded to an advertisement for a graphics artist. Kwan eventually convinced Sean that he needed a professional interior designer to design the rooms. It sounds obvious doesn't it: if you want good room design, why not get a professional room designer?

Kwan's involvement with the game was his idea of a dream come true, because for the first time he had no set limits. No budgetary limits, no room dimension limits, nothing. In fact the only limitation, was his own imagination. According to Kwan, 'The whole game will be set inside a single building. A robot must be tackled on each floor and the higher you get the cleaner and more hightech the rooms become.'

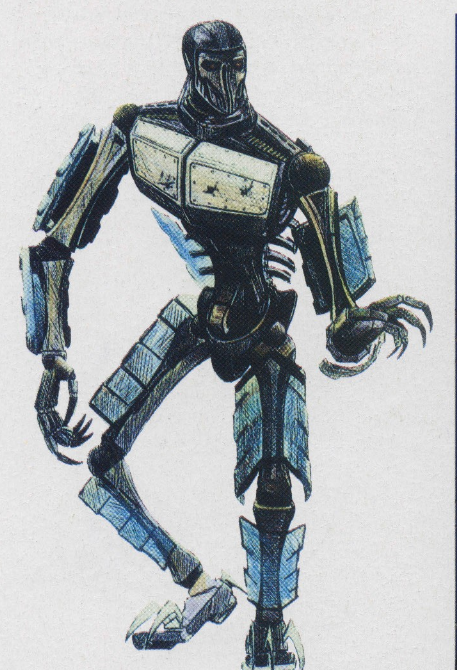


Both Seans (Griffiths and Naden) got together to design the scenarios for the game. An extract (above) from a page of the storyboard shows the Cyborg preparing for his next battle



Photograph: **Adrian Ford**

Gary Leach, himself a martial arts expert, perfected the robots' fighting movements





Naden sketched many ideas for robots. Some were ditched, but this soldier (above) was implemented in the game. The finished image (above right) is fairly faithful to the original idea

Playability is

the one elusive, yet totally vital element missed by so many of these graphically outstanding games. **Andy Clark** was the programmer responsible for teaching the robots to fight: 'We spent nearly two months designing a collision table – it uses a system of coordinates with

Continued next page

***Rise*'s biggest downfall could be the way it plays. The major concern centres around the fact that PC owners usually only have one button on their joysticks. And the console versions will use the same one button system as the PC, even though those machines have more buttons. However, all the special moves will be accessed through tricky combinations of joystick movements, and if it's implemented well enough, this shouldn't detract from the game**

contact and collision points.' But gameplay in *Rise Of The Robots* has another big asset: Artificial Intelligence.

The intelligence is all based around the various attributes of the robots. Strength, intelligence, speed, and motivation alter the behaviour of the robot on the screen. 'We basically set up a huge table of responses to opposing moves, so the player, by using his robot's intelligence and motivation, selects the best response to the opponent's current move. Things like speed and strength are also factors, determining how much energy is used. Each bout will be different because all these factors are constantly updating', Andy explains.

Other table generators look at which moves you particularly like using and the moves you find easiest to get a contact with. With other beat 'em ups, if you found you were successful with a footsweep, you could continue to use it. But this system actually tots up all the statistics in the background for particular moves, and if you get good at a footsweep, then your opponent will act more aggressively towards that move – it will block it more or jump out of the way and counter attack.

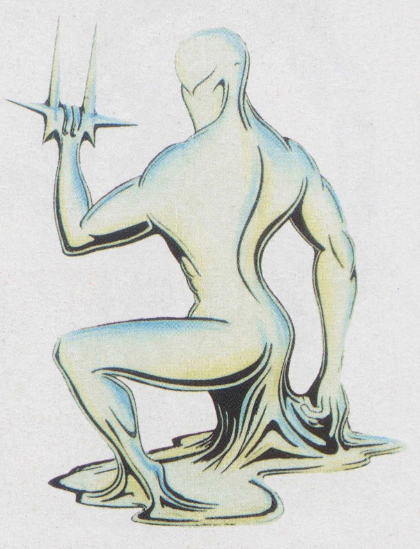
Other factors like success rate and aggression are also taken into account. The success rate calculates how many moves have made contact and how many blocks have been successful. The aggression factor is also quite unique. Attacking moves have a positive number and defensive moves have a negative number. All these are then added up over a period of time to give a rough account of how aggressive the opponent currently is, which again affects

Photograph: **Adrian Ford**

Programmer Andy Clark was the man behind the complex gameplay in *Rise Of The Robots*. It uses a series of specialised data tables

'We spent two months designing the collision table... Each bout will be different because it's all constantly updating'

Andy Clark,
Amiga Programmer



This is the original design for the Supervisor – the last robot you face on the Electrocorp site

the robot's response to your moves.

The motivation factor is calculated from all these. If the robot is on the defence, it will have low motivation, but if it's attacking, motivation will be high – the higher the motivation the stronger he becomes.

Apart from jumping around the office karate chopping everything in sight, Gary Leach did have another role in the development of *Rise Of The Robots*. Gary took the 'AI' tables from the Amiga and ported them directly to the PC. 'Andy had done the hard part, so porting over the tables was quite easy. What wasn't quite so easy was the screen flickering we got because of the resolution. *The 7th Guest* used the same resolution but the programmers didn't use 'page flipping' to get rid of that flicker. If you had a slow machine it looked quite bad, and on *Rise* it would definitely look flickery if I hadn't used this technology. So I came up with the page flipping technique, which I haven't seen done on a PC before. Unfortunately, we'll have to lose the shadows in the final version. They are a nice touch but some of them take up half a meg, so if we can fit them in we will.'



Photograph: Adrian Ford

There was a five-man design team behind *Rise Of The Robots*. From the right, they are: Andy Clark, Sean Naden, Kwan Lee, Sean Griffiths, and lastly the team's martial arts expert, Gary Leach

Rise is one of those games that barely needs a plot, but it has one anyway. Metropolis 4 is a city of the future, and is run almost entirely by robots. The Electrocorp building is where all the military and industrial robots that drive the city are manufactured. But it all goes wrong. The main robot in charge of all production – appropriately called the 'Supervisor' – is affected by an severe ego virus and he turns violent. So, the company sends in a Cyborg to deal with the matter.

Rise Of The Robots has a few surprises in store when you defeat the final robot. He'll either explode into thousands of pieces (very impressive) or, explode into thousands of pieces only to reform and kill you. Sean hasn't decided what will trigger off the perfect ending just yet, but he's hinted on the possibility of a certain finishing move…

The game is already about 70% complete, and versions for the Mega Drive and SNES are also planned. Sean did say that he would like more time to test the game. '*Street Fighter II* was tested for a year, I'd like to have that sort of time with *Rise*.'

Whether the game will live up to its name and rise above other beat 'em ups remains to be seen, but Mirage's PR manager, **Julia Coombs** is quick to defend *Rise* against accusations of it being just a *Street Fighter* clone: 'It's insulting to hear it being regarded as a *Street Fighter* clone. Is *TFX* an *F19* clone? There are flight sims, there are platform games, there are also combat games. It's a genre of product, but this isn't just a *Street Fighter*. It has gameplay that has never been seen before and graphics that have never been seen before – it's the next generation.'

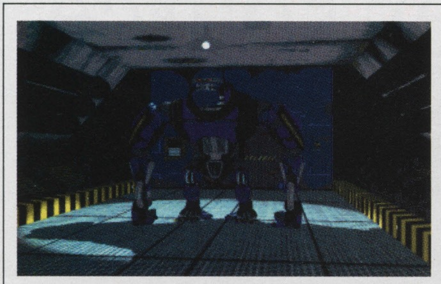
Let's hope those words ring true when *Rise Of The Robots* is finally released for PC and Amiga sometime in January.



Credits

Designer:	Sean Griffiths
3D modeller:	Sean Naden
Interiors:	Kwan Lee
Amiga programmer:	Andy Clark
PC programmer:	Gary Leach

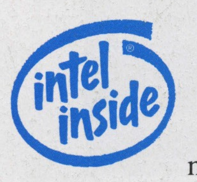
How the Builder droid compares on Amiga and PC





The robots in the PC version use up to 1·5 meg of disk space – and still the programmers have had to drop the detailed shadows to speed the game up. The Amiga version uses only around 200K for each robot image. The above three screens show the PC and the A500 and A1200 versions of the game. The Amiga 500 screen (left) may lack some of the detail of the PC version (right), but the main characteristics of the robots are left intact

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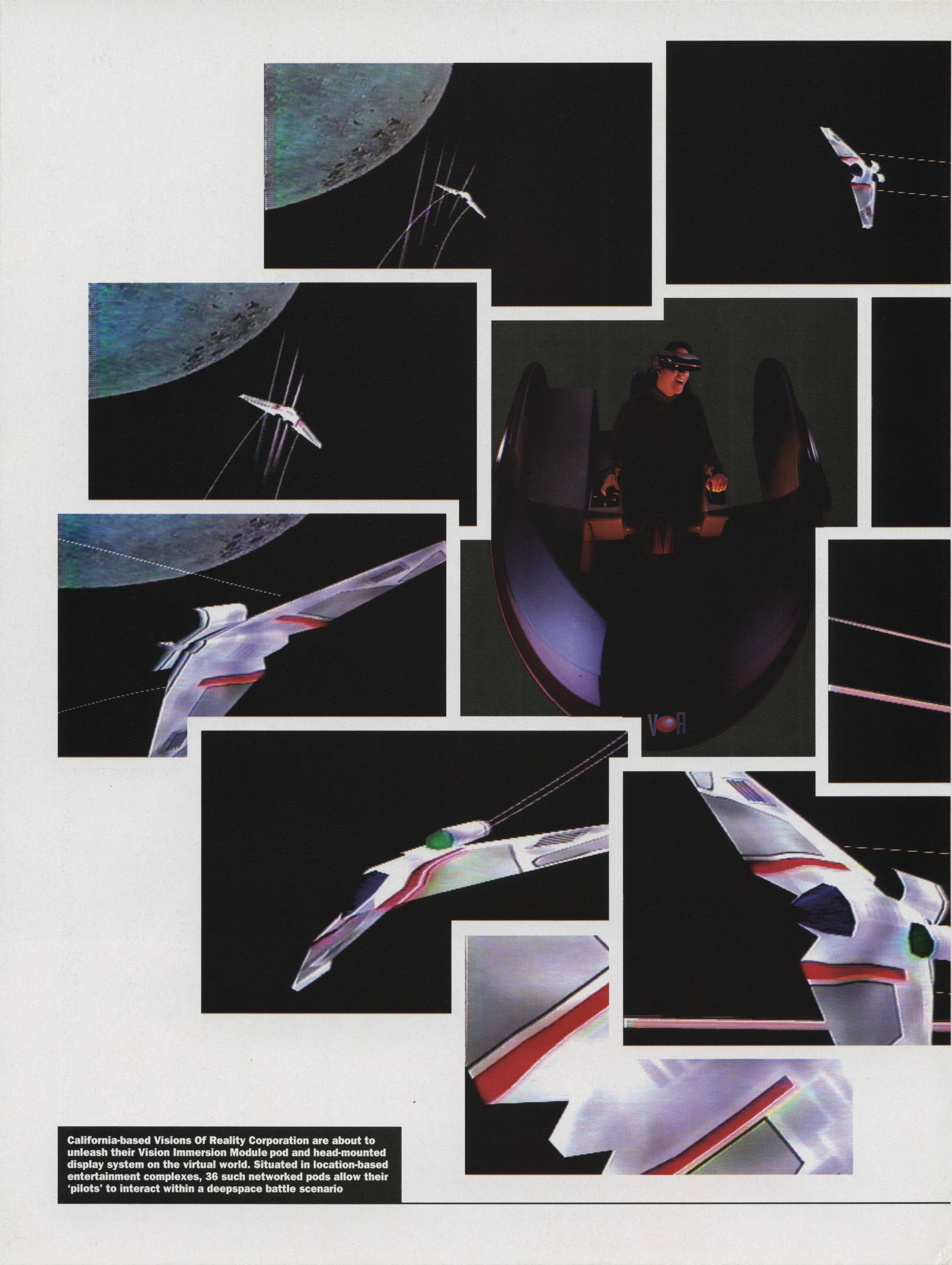
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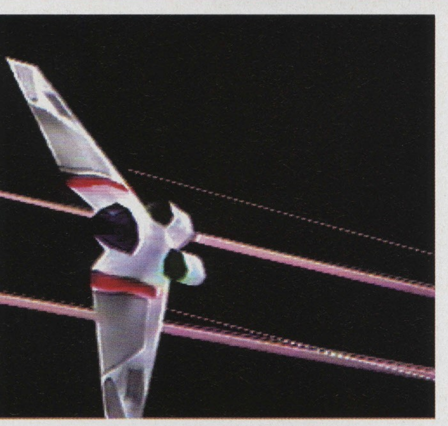
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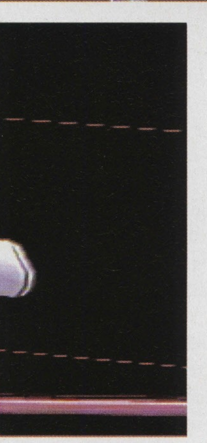




California-based Visions Of Reality Corporation are about to unleash their Vision Immersion Module pod and head-mounted display system on the virtual world. Situated in location-based entertainment complexes, 36 such networked pods allow their 'pilots' to interact within a deepspace battle scenario









The next step...

Virtual Reality has for so long been the subject of science fiction, hype and confusion. But now, at last, it's about to happen. Bigtime. Playing videogames will never be the same again; **Edge** takes you into the next dimension

You probably have your own idea of what VR is and you probably came to your conclusions after spending an afternoon at the Trocadero, seeing Lawnmower Man, reading Neuromancer or Sellotaping a Game Boy to your face and heading into town.

The truth is, however, that VR is still defining itself. It currently consists of lots of different companies coming up with lots of new ideas and translating them into ingenious hardware and software devices. It consists of Sega linking up with Virtuality to try and introduce VR to the home, it consists of all the major coin-op manufacturers in the world realising that banging away on a couple of buttons just won't cut it any more, it consists of the industrial and military giants who are experimenting with perception control and environment creation, and it consists of all the major consumer electronics companies



VOR's system (opposite) uses the new hi-res Personal viewer from Kaiser Electro-Optics

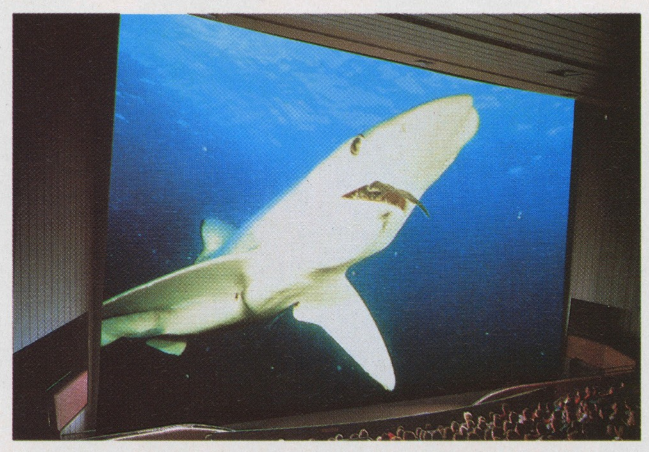
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Defining Virtual Reality

There are many ways to generate a virtual reality or immersive experience. Someone sitting at home playing *Sonic The Hedgehog* on a big TV with earphones on is effectively immersing themselves in that environment: interacting with that world to the exclusion of other stimuli.

Of course, the *Sonic* player is very much a third party. When Sonic runs and jumps the player feels nothing, and always views the world from the outside looking in. This is indirect immersion.

The next step is to provide a firstperson perspective – think what it would be like playing *Sonic* through Sonic's eyes? And then, if every time he performed a loop-the-loop, your pulled the same Gs and felt the same sensations?



A great white shark about to devour an entire IMAX cinema audience. This is about as virtual as most people would want to get

This is what the latest generation of theme park rides endeavour to do. Universal Studio's Star Tours, Body Wars and Back To The Future Rides are the state-of-the-art in that department, providing thrilling rollercoaster rides through space and time – without ever actually moving more than a few feet in any direction. By choreographing 3D motion of the hydraulically-supported vehicle to the movement inferred by the film (which, in the case of Back To The Future, is displayed on an IMAX-style screen) the audience really feel as if they're turning, banking and diving.

Of course these rides are linear. The special effects never vary and the audience cannot alter the outcome of the ride: it's always the same.

A more interactive world can only be generated by using computer graphics to render the scenery in real time. And this is where the likes of Evans & Sutherland come in, with their Virtual Adventures rides.

These are defined as partial immersion and some might argue that the presence of others – and also the props and vehicles – within the experience bring it all back down to earth.

The next step is to go for total immersion, where everything that the participant sees is generated by computer and fed directly into stereo eyephones in a head-mounted display (HMD).

Motion sensors detect the movement of the participant and adjust the field of view accordingly: swing your head to the left and the virtual world – or playscape – pans past from left to right.

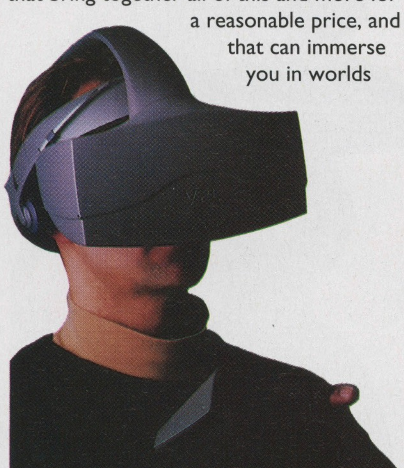
However, the move away from passive entertainment, videos, movies, theatres etc, to interactive entertainment – already dubbed 'Intertainment' may not be a smooth one. There has already been some fears voiced in the press over long-term exposure to LCD or CRT screens in close proximity to the eyes. **Mark Pesce** – formerly of the Ono-Sendai Corporation – explains: 'A headmount 'decouples' the sense of binocular parallax from the movement of the eye muscles. In essence, the HMD cheats your brain into seeing a stereo image, without requiring your eyes to develop a parallax view of the image. This causes the eyes to become lazy [and] until the kids start walking into walls because they can't detect depth properly, we may not know for sure how serious this problem is.'

If this debate continues then the future of Immersive Reality Entertainment could be in some doubt. 

Continued

in the world dedicating at least some of their R&D to the subject.

One day, it will consist of machines that bring together all of this and more for a reasonable price, and that can immerse you in worlds that are yours to explore and interact with.



VPL's Microcosm VR system features the EyePhone XVR, a smart, lightweight HMD

Industrial and military giants are busy experimenting in perception control and environment creation...

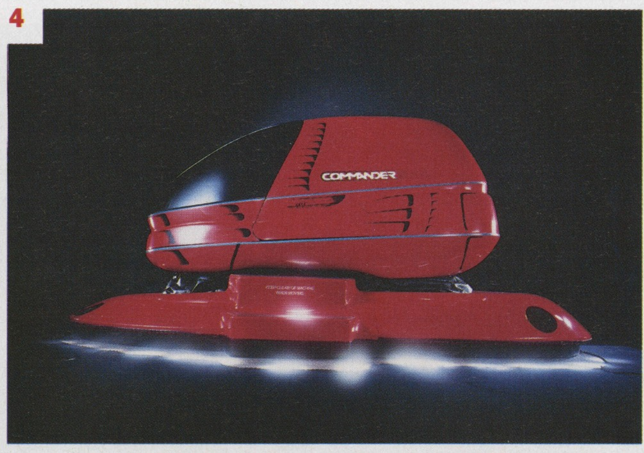
For now, however, let's start at the top. NASA's Ames Research Centre in California is a hotbed of VR research, producing 3D views of the martian landscape in real time which can be flown over by budding cybernauts. Other systems control robots with stereo cameras in their heads so the person controlling them sees the world exactly as the robot sees it. This is called 'telepresence' – you literally feel as if you are somewhere else.

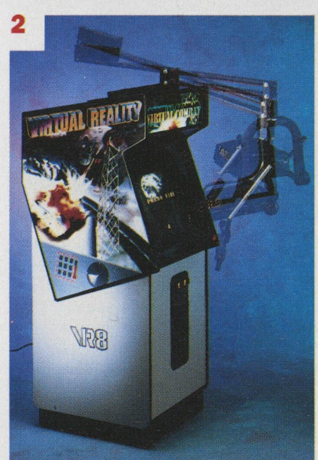
Controlling robots in other countries or even on other planets and seeing and hearing exactly what it sees and hears is already being discussed as a real possibility for the future.

All over body suits would complete the vicarious experience. If you want to reach out and grab something, you can. The arm of the robot will replicate your movements, and sensors conveying the size, texture and weight of the object will give you the impression of actual contact.

The primary application for such devices will, of course, be space exploration – NASA doesn't make consoles, yet. Nor, sadly, have they announced plans ever to do so. But the games market can still feel the benefit













1 **Chicago's Battletech centre provides a virtual arena where giant walking robots attempt to demolish one another**

2 **The VR8 coin-op is probably the cheapest VR arcade game. The binocular display is mounted on a mechanical arm which allows the path of the viewer to be tracked without complicated sensors. The game is a 3D *Tank Battle***

3 **This urban scene shows the quality of graphics that can be generated real time using a Silicon Graphics RealityEngine. With hi-res HMDs this is the level of realism VR users will be enjoying in only a few years time**

4 **The Hughes Rediffusion Commander is the world's first motion based VR capsule. However, with the acquisition of Rediffusion by Hughes Aircraft, the project was cancelled and is now up for sale. Offers please...**

5 **A joint venture between the Virtuality Group and Matsushita, the CycleExa Virtual Exercise Cycle gives the bedroom cyclist something to look at while he or she cycles for fitness. Pedal fast enough, though, and the cycle 'takes off' providing an aerial view of the countryside**

6 **One of Virtuality's stand-up coin-ops. Featuring a *Dungeons And Dragons*-style experience, the player wields a virtual weapon to despatch his networked adversaries**

through a sort of technological trickledown – the process that has already seen previous space missions spawn items such as the non-stick frying pan and the electronic calculator.

And the likelihood of such technolcgy reaching the home user is increased as all organisations and companies become more and more aware of the commercial potential of military and industrial innovation in the consumer market.

Evans and Sutherland, one of NASA's leading suppliers of flight display systems has already forged a link with Iwerks Entertainment, specialists in big screen projection and state-of-the-art theme park simulation experiences. Together they are working towards an incredible 3D VR arcade system called Virtual Adventures, the first of which should be up and running in the spring of next year.

In another broad and promising alliance, a Californian company called Visions Of Reality has joined forces with aerospace and electronics giant Kaiser – supplier of displays for military simulators and actual aircraft. Their aim is to produce a range of virtual reality games for use in arcades or theme parks.

Their first product, a shoot out in space, is about to go into production soon, and future projects include aerial dogfights, helicopter flights and car racing simulations.

All these will come with a specially designed headset using a version of Kaiser's technology that contains electro-magnetic sensors to provide the computer with information about the speed and direction in which the player is moving. The computer then responds by generating hi-res stereo images – all in real time – resulting in what Visions claim will be a 'fully interactive world'.

Ono-Sendai Corp

of Japan are very much into making usable and, more importantly, saleable VR equipment. Founded in 1991, Ono-Sendai Corp wants to make affordable VR hardware and software that'll enable consumers to interact with the TV and with each other in a shared virtual space.

The company has a mission: 'to bring enabling low-cost, high-performance software and hardware technologies to consumers in their homes, workplaces and wherever there is a television.'

This is very much the kind of territory the likes of 3DO are wanting to inhabit too, so it's a possibility that these two companies may get together.

They are also developing one of the smallest and lightest HMDs ever devised, and are currently talking to a number of companies about licensing the technology.

Ono-Sendai has also developed what it calls 'three dimensional sourceless orientation technology' for its virtual reality head-mounted displays. The company has discovered additional applications for the sensor, including use in a remote control

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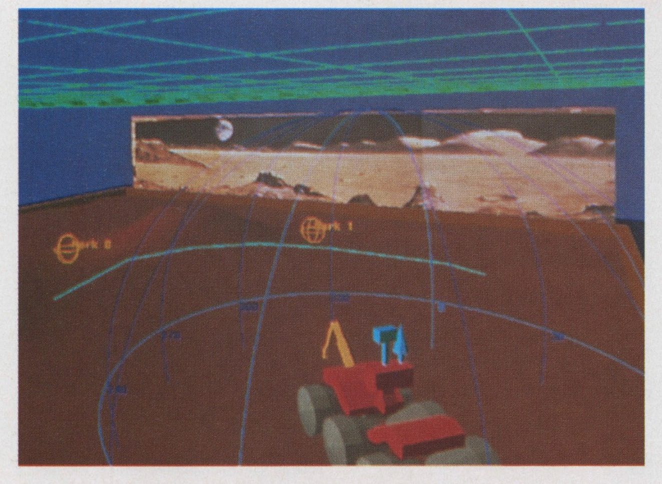
The history of Virtual Reality

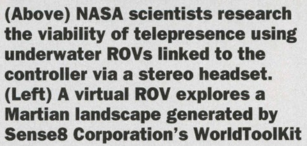
The early forerunners of VR were experiments in cinema, like Cinerama and Sensorama, techniques involving very wide screens to totally involve, or 'immerse', the user in the experience.

This culminated in 1970 with the IMAX cinema, a totally enveloping experience, which you can only see in the UK at the Bradford National Museum of Photography, Film and Television (0274 732277).

The screens are large and curved and the seats are steeply raked in front of the screen to provide a huge 70mm movie image which fills your peripheral vision, giving you the feeling of really being there – wherever 'there' might be.







(Above) NASA scientists research the viability of telepresence using underwater ROVs linked to the controller via a stereo headset. (Left) A virtual ROV explores a Martian landscape generated by Sense8 Corporation's WorldToolKit

Another root of VR was the old stereo image viewers, invented in the mid 1800s by a chap called Wheatstone. These devices were in every home, and were something of a craze at the time: if Sega had been around in Victorian times, they would have been in the stereoscope business.

This technology evolved until the late '40s when the Viewmaster become a similar craze for young and old alike. This was the first worldwide VR experience that most people had access to, showing real 3D photographic images of places they had never been before – only the sound was missing.

The Sensorama machines designed by Morton Heilig in the late '50s and early '60s came closest to the virtual reality experiences we know today. A chair sat in front of a booth like an arcade machine and the device had a binocular vision viewer, handlebars, jets of air which could blow in your face on cue, a vibrating seat, vents near the nose to generate scents, and stereo sound via speakers next to the ears.

The ride was a stereoscopic motorcycle ride down a Brooklyn street with the sounds, sensations and the smells all happening in sync. Nothing like this has been made since, not even with the most expensive computers. However, Heilig lost the backing of the movie companies for his machines, as the film business relied on massive audiences and quick turn around of money. They

Continued

for consumer electronic devices. Simply by moving the remote up, down or sideways the user will be able to easily perform such functions as changing the television channel, adjusting the CD-player volume and controlling a VCR.

This new sensor technology has been licensed to 'a major videogame company' for use in a virtual reality game system shipping soon in the US. Any guesses who it might be?

Other participants in the project include Sense8, the leading supplier of software development tools in the VR field, and Silicon Graphics, the computer design company behind the special effects in Jurassic Park and Terminator 2 – and the firm with whom Nintendo is working towards a 64bit super console.

Nintendo is a company that has had links with VR from the early days – through its PowerGlove VR gaming peripheral, which was designed by VPL. One of the first big names in the industry, VPL was a company that rose and fell, but not without causing a stir in the market with its visors, datagloves and allover datasuits. All were very high quality devices which at the time represented the state of the art. Its final product was the Microcosm home VR unit based on a Mac Quadra and i860 graphics accelerators.

Sega VR may turn out to be just a nod towards the technology – while it works on the real kit

The Nintendo/Mattel PowerGlove that VPL created was designed as a scaled down VR peripheral for Nintendo NES game consoles. Sadly, the unit was a little before its time and soon stopped production. Ironically it is now one of the most used devices in DIY VR machines, due to its quality and price. When it came out it was just $80, as compared to $5,000 upwards for any other kind of dataglove.

Theme parks and arcades are where largescale VR is starting to happen first. There are already 50 machines from Virtuality (formerly W Industries) onsite throughout the UK, and with the company receiving a massive funding boost through a stock floatation later in the year, it is set to significantly step up its activities.

The firm has already signed a deal with Sega to work towards machines designed for Sega's Virtual Reality theme parks –

didn't of course bank on the coin-op videogame boom being just around the corner.

Computers were then very big complex machines which you had to adapt yourself to, rather than the other way round. There were no graphics, just text, and no video monitors, just teletypes and punch cards. It was a very complicated and not very intuitive experience. That is until in 1968 when Douglas Engelbart invented the use of CRT display and the mouse pointing device, along with icons on screen. He also invented the word processor, and a rudimentary hypertext system.

At the same time on the East Coast a guy called Ivan Sutherland was hatching what would turn out to be 2D, and later 3D, computer graphics using a light pen to draw on the screen of a CRT. Sutherland also invented the first head-mounted display (HMD) which was nicknamed Sword Of Damocles due to the huge weight of equipment suspended over the wearer's head.

Around the same time, at the University of Wisconsin a guy called Myron Krueger was using computers and video to create what he called 'artificial realities', video installations which enabled users to walk up and interact with computer generated objects, not unlike the recent Mandala system running on Amiga computers.

Krueger's experiments were the first VR video games. *Critter* showed a video silhouette of your head and shoulders and introduced a computer driven bug onto the screen. The critter crawled up your head and could be picked off by your hand. You could dangle the thing before flicking it off – fun, but really serving no purpose beyond that.

The third and final element, *GROPE*, was added by Fredrick Brooks working at the University of North Carolina in the early 80s. He devised a way of creating 3D models of molecules and providing the user with tactile feedback, so you could 'feel' them. Using a 3D image and touch, you could dock molecules together.

With all the pieces of the VR jigsaw available, all that was required was for VPL's Jaron Lanier to coin the term 'Virtual Reality' and a myth was born. **E**



One of Evans & Sutherland's military simulators in full flow. The technology developed for military simulations, and head-mounted displays for targetting, have had a major bearing on the development of VR

already massively popular in Japan, and due to be introduced here in the new year.

And from the arcades, of course, the trickle down continues. Sega has already stated that it hopes its relationship with Virtuality will lead to improvements in its consoles and the development of increasingly sophisticated home VR. The Mega Drive itself, remember, is a spin-off from Sega's substantial arcade business.

The Japanese giant already has plans for a VR headset designed for use with its Mega Drive. First previewed earlier this year, the launch date has been put back, possibly in response to a lukewarm reception from press and the industry.

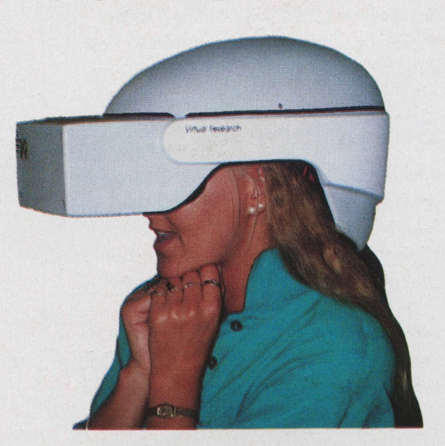
The unit employs a head-mounted display (HMD) with stereoscopic vision and motion trackers to move the picture as you move your head. 360 degree sound is supplied by the QSound system pioneered by Archer Communications, and, according to Sega's press release, 'Sega VR will be the first full-colour virtual reality unit for the home and will be available under $200.'

Half a dozen games are being developed for it, and they aren't just Sega platform games with 360 degree screens. Although you can play ordinary games on the HMD, the games written for the system will be specially coded.

These include a cyberspace game where you battle hostile computer hackers in an environment similar to the William Gibson books, and a 3D *BattleZone* clone. A whole line-up of 'proper VR games' are planned for release over the 12 months following release of the unit.

In truth, however, Sega VR may turn out to be just a nod towards the technology – a 'me too' gesture letting the world know that VR is part of Sega's plans while it works on the real kit with Jon Waldern's Virtuality team.

Sega's VR headset will be the first step to introducing 'real' VR technology into the home, but other tools are coming along. The most potent pointing device yet created for VR environments is a sort of VR mouse, called a six degree of freedom (6DOF) mouse. One such mouse is made by Logitech, although not as yet as a



The Virtual Research 'Flight Helmet' – universal workhorse of the VR community

Continued next page

Evans & Sutherland – VR pioneers

For 25 years, Evans & Sutherland of Salt Lake City in Utah, have been providing photorealistic computer generated images for military and scientific simulations.

E&S produce rendering hardware that makes a Virtuality coin-op look like a Game Boy – their top-end Image Generator can display up to 24,000 texture-mapped surfaces every single screen refresh, *real time*. No sitting around waiting for single frames to draw.

Now they're putting their experience of simulating reality to use in simulating imaginary worlds for the entertainment field – coin-ops and virtual reality.

They're currently working with Namco toward the next generation of 3D arcade machines and have joined forces with Iwerks Entertainment on their Virtual Adventures theme park ride.

The as-yet-unnamed ride features four undersea vehicles attempting to save the Loch Ness monster from extinction. Each vehicle holds six people: pilot, navigator, two observers in the rear with periscopes and two robot arm operators who collect the endangered eggs.

The entire installation contains eight vehicles with four working at any given time, while the other four are being prepped for the next run.

Of Virtual Adventures, E&S' communications manager **Jeff Edwards** says, 'We really didn't want it to be an individual experience as you'd have with a helmet; it's kind of a non-social activity.

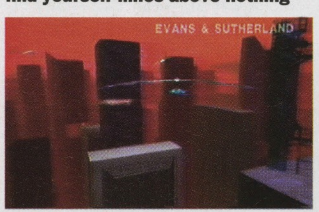
'The Virtual Adventures



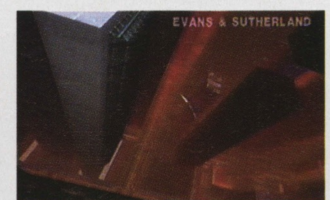
This Martian landscape (above) shows what E&S' sub-$100,000 Liberty system can do. A dragon belches flame in 'Hypergatory' (left) – E&S' stunning technology demo, showing that they can do more than tanks and jet fighters



1 **The flight begins with your hanglider launched through a portal atop a towering skyscraper**



2 **Like flying over the edge of the Grand Canyon, you suddenly find yourself miles above nothing**



3 **Swooping down over the edge of a building, your stomach rendezvous with your throat**



4 **As your fellow hangliders carry on, you peel off and follow a small group of hoverships**

Continued

consumer product. It's sold purely as a developer's kit, for researchers into VR, but who knows – within a year this could all be in the home. Think about it. The 3D Graphical User Interface (GUI), complete with 3D mouse. Not only will your desktop no longer be confined to the screen, it won't even be limited to two dimensions...

But before VR comes crashing into the home, let's get a good handle on what it is – just so we'll recognise it when it arrives. The elements of a working VR system can be broken down into two parts, the 'effectors' and the 'reality engine'.

The effectors are the HMD incorporating the visual displays and headphones, the transmitters which locate body position and orientation, plus any other control devices like datagloves and force balls/joysticks. The reality engine is anything which supplies and controls the experience, like the CPU, the software, video cards, sound processors, synthesisers, and I/O ports for all the individual effectors.

Sensors on the HMD relay your exact position to the reality engine over a cable-free link

Rendering the 3D image in both eyepieces is only a small part of the problem, although that in itself has taken years of development to get it to even today's standards. The thing which really makes the difference between a 3D game and a VR experience is tracking the head movements from side to side and up and down, and relaying those in real time to the computer sending the visuals, so that they change in sync with your viewpoint.

Sensors on the top of your HMD receive a signal from a transmitter on the main unit, and relay your exact position to the reality engine over a cable-free link.

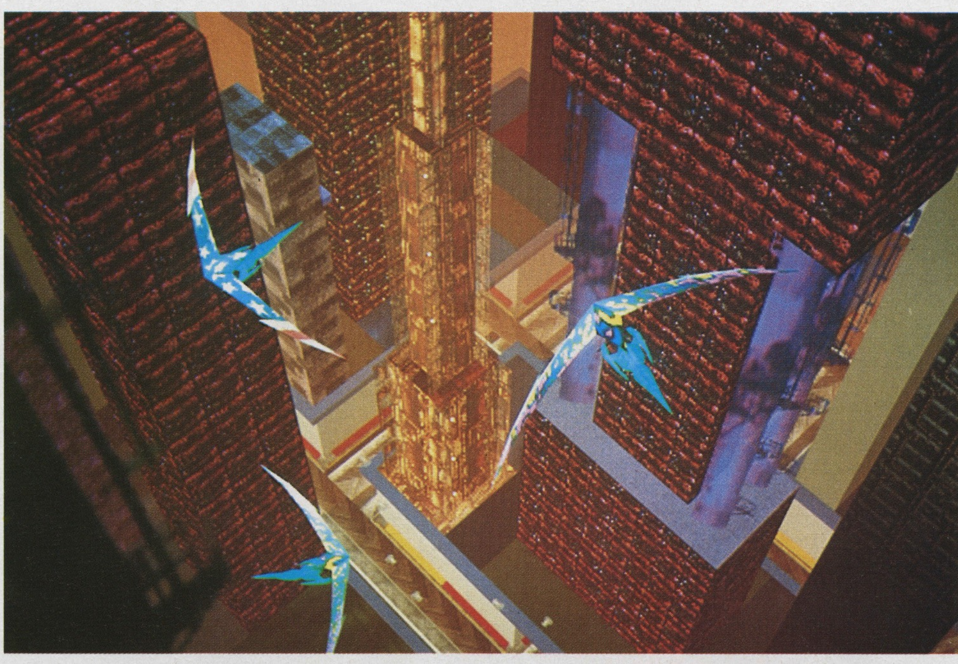
The reality engine is generally a fast computer, at least a 68030 or 68040 Amiga or 80486 PC clone, coupled with a pair of fast dedicated graphics processors. This enables the computer to generate two near-identical images in almost real time with only a marginal time lag between moving your head and the image tracking in the viewfinders.

The Virtuality system, for example, uses an Amiga platform with custom TI 34020 graphics chips and its own built-in

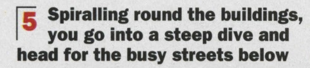
project is different because there's six people sitting in the cockpit together. They can freely interact with each other, they can trade places during the game, they can work as a team, which might be a really good family experience.'

The ten-minute VR ride is powered by E&S' ESIG2000 image generator and the whole installation costs a cool $1million – you won't find many outside of major theme and amusement parks. The first customers will be announced shortly, with installations online by spring 1994.

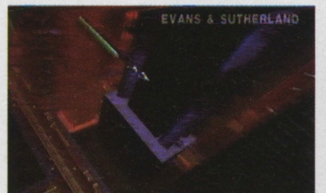
And seeing the potential of this emergent marketplace, E&S are starting to produce a new family of sub-$100,000 machines, starting with the Liberty, which are targeted directly at the entertainment field.



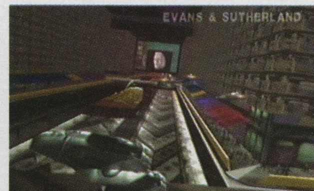
To demonstrate the potential of their systems, E&S have produced a virtual hanglider ride (see below). The 3D background is rendered realtime as the pilot steers his hanglider through the virtual cityscape



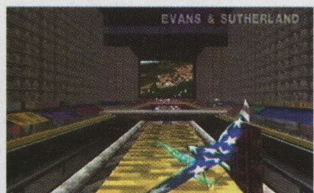
5 Spiralling round the buildings, you go into a steep dive and head for the busy streets below



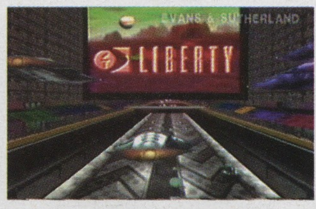
6 Approaching ground level, your hovering convoy skim along past shops and traffic



7 Flying low under bridges and over walkways, you hurtle along a futuristic roadway



8 Finally, you come to rest in front of a screen advertising E&S' 'Liberty' imaging system



sound. Sense8 Corp use Intel PCs with i750 and i860 graphics chips, with MIDI and 3D sound processors, but some of its systems are also based on ultrapowerful Sun or Silicon Graphics workstations.

Hardware this fast enables you to create a full colour 3D world which is able to move and follow your movements at about 10 frames per second. This doesn't sound a lot, but it's enough to give you the ride of your life. And the technology is improving all the time, and faster machines mean faster VR.

To produce real 3D on the fly, two images are generated in real time, simulating your view of the virtual world. The two 'cameras' through which you view the world are set at eye distance apart. This has the effect of generating a stereo image with enforced depth perception.

The information is finally fed to the graphics boards, which generate the images for each eye and send the images to the HMD for visualisation.

We are still not quite there yet, but according to all the experts, true VR in your living room or on your desktop is only about 12 months down the line. So you'd better get ready.

Like all possible futures, the one where VR becomes a household tool is only one of many options. It may be that VR turns out to be a flash in a much larger pan, and it merely points us in the direction of a new, as yet undiscovered communications technology.

As the phone spawned the TV and the TV spawned the computer game and the computer game spawned VR, perhaps VR is just a stepping stone to a higher form of computer interaction. On the other hand perhaps VR and lightweight HMDs will become as commonplace as the mouse or Walkman headphones. It could be. VR is a like a telescope or microscope, a tool to make something previously invisible more accessible. Whereas those other tools look at distant stars and minute particles, VR is a tool for looking at information, and presenting it in the most natural way. Sound, vision and touch, all these sensory tools help us to learn about things and to evolve better ways of working, living and having fun.

Welcome to cyberspace.



Virtuality's coin-op headset now looks out of date compared to the very latest HMDs


Simulation
Puzzler
Platform
Beat 'em up
Shoot 'em up
Secondary Communication
Items: 1
Headline
The competition just got a whole lot tougher.



Role-play
Adventure
Nintendo
Tertiary Communication
Items: 1
Endline
Nincontinent
Nintimidating
Nintendo
Packaging
ms: 1
Packshot
Street Fighter II Turbo
Street Fighter II Turbo
Nintendo
CAPCOM
SUPER NINTENDO
PAL VERSION
Console with game around £140.
Game around £60.



Illustration: **Paul Kidby**

Game Over

Videogames have been around for 20 years, but game styles have been stuck in a rut since the 80s. Is this the death of the games industry, or just the start of a new generation? **Edge** reports

Flick through the pages of any games magazine and you'll find… what? *Sonic* and *Mario*, *Street Fighter II*, *Ultima Underworld* and dozens of other titles, all desperately trying to jump on their very lucrative bandwagons.

Every month there's a fresh crop of tired old platform games, uninspired beat 'em ups and laborious adventures.

The videogames industry has been around for almost 20 years now, and in that time games have comfortably settled into several distinctive, repetitive, types.

Now, flick through the pages of an old videogames magazine from, say, five or six years ago. The same game styles are there and chances are the games will be pretty similar too. All the new games and all the changes that have occurred so far have been largely superficial, and game genres have changed little since the mid-eighties.

The games that have been successful, that have become part of videogames history, show not only the major characteristics of each genre but also how limiting these genres are becoming on all aspects of game design.

It doesn't mean that new games aren't good, it doesn't mean that they aren't better to play than their predecessors, it just means that there's not a whole lot of difference between a new game and one that's six or seven years old.

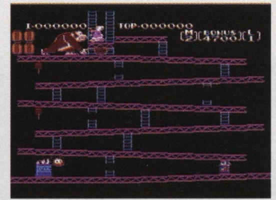
But what's the problem in that? Well, if games can't break out of or substantially improve upon the genres they're stuck in there might not be a future for videogames. That doesn't mean that they're not going to be around anymore, but that they'll be going nowhere. Up a dead end.

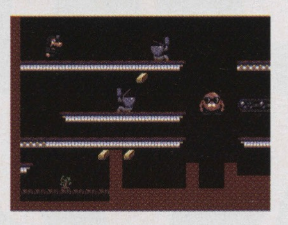
To be frank, this stagnation shouldn't surprise anyone with even half a brain. Generic production has been the staple of the software industry since games first came out of the arcades. By producing such generic games, whether they're shoot 'em

Continued next page

Genre 1: Platform games







From *Donkey Kong* (top right) to *Manic Miner* (bottom right) to *Sonic* (main picture), platform games have become huge sellers but remain horribly basic and rather limited in scope

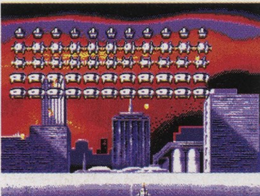
Think platforms and most people think *Sonic The Hedgehog* or *Super Mario Bros.* Both of these games are (more or less) flashy obstacle races, slick, easy to get into and suffering badly from sequelitis.

Since its origin as the coin-op *Donkey Kong* in 1981, the platform genre hasn't progressed very far: most games use the same themes established by Nintendo.

And since Mario and Sonic took off, the characters in platformers have become as important as the game itself. Every platformer now has the obligatory 'cool' character like Zool or Bubsy, or an imported film or TV star.

Current platform games are a triumph of style over content, full of visual pazazz but bereft of any new ideas, and the whole genre's looking more than a little stale.

Genre 2: Shoot 'em ups







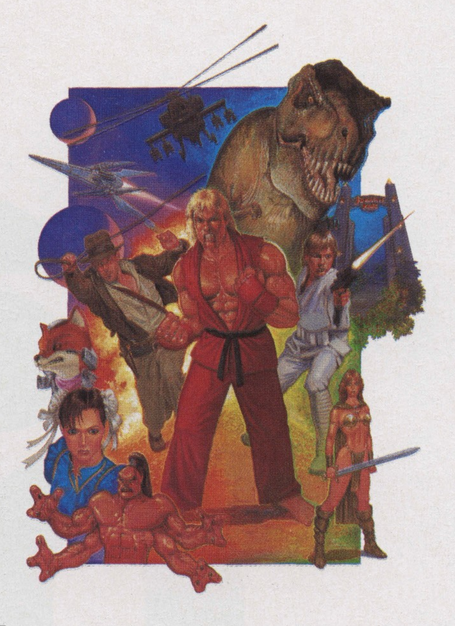
***Space Invaders* (top left) kickstarted videogames and *Nemesis* (bottom left) set the format that all others have followed. *Viewpoint* (main) is merely a *Zaxxon* for the 1990s**

Now, if there's one genre of game that's really stuck in a rut it's shoot 'em ups. *Space Invaders* began it all and games like *Galaxians*, *Phoenix*, *Scramble* and *Zaxxon* developed the genre, moving from a singlescreen format to the side-on or vertical scrollers.

But shoot 'em ups haven't really changed since Konami's *Nemesis* which had all the main features we're stuck with today – multiple weapons, power ups and end-of-level guardians.

Sure the graphics have got prettier, and technically more complex with features like parallax scrolling for backgrounds. But whether they scroll vertically or horizontally they're still the same thing – you steer your ship through a hostile landscape taking on formations of enemy craft. Stagnation city.

Continued



ups or flight sims, software designers hope they're guaranteeing the success of the product. But the hidden costs of this short term view may be enormous.

The main things that shape the development of any videogame genre are the technology of the games hardware and software, the business of producing games and people's opinions of the games.

So far, though, technology's played the most obvious part in the development of game genres. The basic hardware and the limited knowledge of software programmers made the early videogames what they were – simple, often singlescreen affairs with points-chasing the major objective. It was an achievement for some machines to manage scrolling (the PC still has trouble) and the Spectrum's colour clash was legendary.

As programmers got to know a machine they learnt how to overcome its limitations, and games got better. But just as one machine was mastered, along came a better system, and so the learning process began all over again.

Because of this relatively fast turnaround in hardware, most of the changes brought about by new technology have been cosmetic. The better processors and extra memory have been, by and large, lavished on better graphics and sound, as most of the genres are just given a fresh lick of paint.

Sure, it looks as if the genres have improved but 'looks' are generally all that has advanced. Once the genres were established, all that any new machine – Spectrum, Commodore 64, Atari ST,

Amiga, Mega Drive or Super Nintendo – has done has been to adapt the game design to suit its strengths and weaknesses.

The other big influence on game genre, and the reason for generic production, is the simple fact that videogames are big business.

No company can afford to take too many risks, and it's a much safer bet to turn out an imitation of a successful platform game or shoot 'em up than it is to attempt something different and risk commercial and critical failure.

Of course, the great games-buying public plays its part too. And so do the specialist magazines who serve the games market. Most magazines only have a two or three year life span and they take a narrow, one game at a time view – anything older than a few months is ancient history. Apart from the odd retrospective, any criticism of games as a form is limited to hailing certain games as classics within their type.

Both the tastes of gamesplayers and games journalists are limited, not through any fault of their own, but because their expectations will be conditioned by established genres, and naturally they'll be looking for enhancements and not necessarily for totally different games.

And most people are conservative in their tastes and will tend towards what they know, rather than chance wasting their time and money on something they know nothing about.

Basically, what it all adds up to is that game genres will develop as technology progresses but any innovation will be moderated by commercial constraints and by the conditioned opinions and expectations of players.

CD-ROM is universally claimed to be the future of videogames, and so far CD-based systems have been sold on the promise of bringing interactive movies to the gamesplayer. These movie games do offer a way forward for game genres. But the sort of movie games we're being sold at the moment aren't any different from the 1983 coin-op, *Dragon's Lair* – lots of superb pictures, but almost no interaction.

Now, the big problem with interactive movies is 'How the hell do you interact with them?' If a game's graphics are presented in the style of a film, with multiple angles, different points of view and fast cutting, it's virtually impossible to devise a control method that would work.

So far most games, like *Time Gal* and *Roadblaster FX* on the Mega CD, have gone for the *Dragon's Lair* approach – you just

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Genre 3: Beat 'em ups







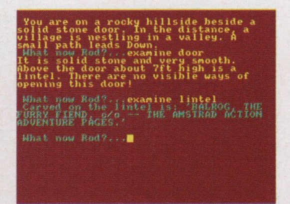
International Karate Plus **(top left) and** ***Double Dragon*** **(bottom left) are the archetypal fighting games.** ***Street Fighter II*** **(main) does it better but it didn't do it first – by a long way**

Beat 'em ups haven't progressed far from Melbourne House's *Way Of The Exploding Fist* and System 3's *International Karate*. Both have moves accessed by complex joystick fiddling – *SF II* has 11 more characters, and better graphics and sound, but it's still the same game. Okay, except for the fact that there were no *Way Of The Exploding Fist* fluffy dolls or underwear.

The first beat 'em ups were simple – *Kung Fu Master* was a basic sideways scroller. Its direct descendent was the *Double Dragon* series where you walked through a level and fought goons. *Double Dragon* spawned several sequels and clones, the best being *Final Fight*, but the same features are there – big characters, a few moves, the occasional weapon and huge enemies at the end of each level.

Genre 4: Adventures







Text adventures (top right) started it all off, and the very latest adventures like ***Return to Zork*** **(main) and** ***Ultima*** **(bottom left) try to paint a thousand words with their graphics**

Adventures and roleplaying games have genuinely changed since they first appeared. Text-only adventures like Infocom's *Zork* series originally led the way. The player would read descriptions of a location and type in instructions using the keyboard.

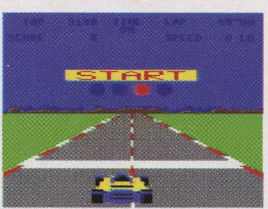
Within a couple of years games like *Corruption* and *The Pawn* had pictures accompanying each location, *and* it wasn't long before Sierra and LucasArts introduced their ground-breaking menu systems. RPGs also advanced from jerky 2D maps to stunning firstperson perspectives and 3D combat.

But the basic concept of discovering new locations, defeating enemies and solving puzzles remains the same. In fact, as interfaces becomes slicker, so the gameplay is reduced to point and click.

Genre 5: Driving games







Out Run **(top left) outgrossed most games with its graphics, and** ***Formula One Grand Prix*** **(main) is incredible but driving has changed little since** ***Pole Position*** **(bottom right)**

Driving games were among the first in the arcade, like Atari's *Sprint* series, which allowed up to eight players to race around a single track.

A different style of arcade driving game was Data East's coin-op *Spy Hunter*, which gave a top-down view with only a fraction of the road visible.

Atari's *Pole Position* really set the style for driving games, with its 3D firstperson viewpoint. Clones like *Chequered Flag* and *Revs* followed suit.

Formula One games now reproduce the real cars and circuits, but the only big innovation is the exterior views brought in by *Indy 500* and, later, by *F1GP*.

In the arcades, Sega made custom machines like *Out Run* and *Virtua Racing*, but beneath the graphics, they haven't moved on from *Pole Position*.

Genre 6: Flight sims







The latest flight sims like ***Strike Commander*** **(main) and** ***TFX*** **(bottom left) are highly realistic and playable, but not that different from EA's 1988 game,** ***Interceptor*** **(top left)**

Flight simulators took a while to get going. Originally, the only flying games were shoot 'em ups, and the first games to use a pseudo-3D out-of-cockpit view were on US machines like the Apple II. Psion's *Flight Simulation* was about the first in the UK to simulate flight, but it got much more sophisticated with Microprose's ground-breaking *F15 Strike Eagle*.

Apart from the odd domestic flight sim like *Airbus* and *Flight Simulator II*, the genre stayed with *F15*'s combat style. Graphics, sound and technical levels have advanced, but by far the biggest change was brought in by EA's *Interceptor*. Multiple exterior views then became the norm on any sim worth its wings, and the PC game *Strike Commander* is now the né plus ultra of the genre.

Continued



help the action along the way with a little nudge from your joystick.

Movie-style graphics have also been used to tart up existing genres, like using a slick front end and some attractive end-of-level screens in an average shoot 'em up. Psygnosis's technically impressive *Microcosm* on the FM Towns Marty CD console is guilty of this. There's a five minute intro that looks as if it was directed by Ridley Scott, and then the main game turns out be a uninspiring blaster – the gameplay's not much different from the ancient *Star Raiders*.

One major side effect of this kind of movie-style game is the shape and size of software development teams. All software developers are now keen to stress how much they're like film studios in the way that they produce games. In most new games, there are specialists for each aspect with a producer overseeing the whole development project.

The ominous thing about such a studio system is that it is just like the old Hollywood studio system – and that was developed specifically to churn out genre pictures, with scant variation from product to product. A software studio will create a much slicker game than two or three programmers, but it's got a lot of salaries to pay, and what producer's going to risk a year's development on a radical game?

So what does the future hold for the existing videogame genres? Well, the factors determining the future will be the selfsame factors that shaped games in the past – namely technological innovations, business concerns and the choices of the

consumers of videogames.

There's no getting away from the fact that, to most games designers and gamesplayers, better technology means better graphics and sound. New machines like 3DO are being hyped on the strength of a few screenshots, but while there's no doubt that enhanced graphics and sound do make for a more impressive game, they doesn't necessarily improve the game.

Once graphics reach a photorealistic standard and sound is the same quality as CDs, there's no real next step for them to take. And, with faster processors and the enormous storage capacity of CDs, machine memory can finally be freed from handling sounds and images.

So if programmers don't have to worry about quality of representation, or about storing images, maybe they'll finally get around to worrying about *real* game design, not variations upon existing types.

Game genres are here to stay. Games and their technology have advanced rapidly in their first few years, but the amount of real innovation in the industry is decreasing year by year.

CD-ROM and VR systems do offer some hope, but in the near future games will continue to be constrained by genre – the constraints may even become more rigid as the videogames industry challenges established entertainments like television and the cinema, and the budgets involved become larger and larger.

Of course, a commercially driven games market isn't a bad thing necessarily; but the downside is that it could be an end to innovation. **Chris Crawford**, designer of the highly original game, *Balance Of Power*, is one who fears the worst. 'I think that games are destined to become a backwater, a well-defined medium that makes money but has been consigned to a creative ghetto by society at large.'

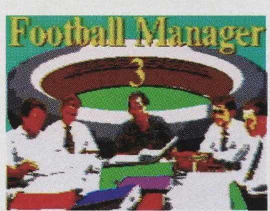
John Hare of Sensible Software agrees: 'The market is generally 80 per cent sheep who will buy whatever anyone tells them to – the sort of people who buy flares and platform shoes because they are back in fashion. The lack of the public's appreciation of quality as opposed to commercial desirability has long been a problem for artists in any media.'

So the message is clear, it's up to you – the consumer – to alter the way videogames industry designs its games.

And remember that whatever happens over the next few years in videogaming could well determine its future for decades to come.

Genre 7: Strategy games







***Football Manager* (bottom left) was an original strategy game, as was *Populous* (main) but too many games are implementations of board game formats, like *V for Victory* (top left)**

The strategy genre is a real mixed bag but it still only has a few basic styles. Chess was the first game played by computer and there's not much to say except that, well, it's chess.

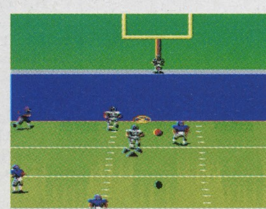
With computerised board wargames, the graphics have changed slightly, and the odd bit of arcade action's been thrown in, but in games like *V For Victory* and *Universal Military Simulator* the games haven't changed much since they first left the tabletop.

Management games have been popular since *Kingdom* and *Football Manager* in the early eighties. And the ultimate management games are the 'God' games – *Populous*, *Sim City*, *Mega-Lo-Mania*, *Civilization* – but whether you're running a football club or ruling the planet, the gameplay's much the same.

Genre 8: Sports simulators







***Sensible Soccer* (main), *John Madden* (bottom right) and *EA Hockey* (top right) have all set standards for their sport, but are now in danger of being copied, or sequelled, to death**

Sports simulators are a different kettle of fish to other genres. Because the game's trying to simulate something real, the problems programmers face are what view to take and what control system to use. And once it's set, people stick to it.

Take football: *Match Day* on the Spectrum, *International Soccer* on the C64, *Kick Off* and *Sensible Soccer* on the Amiga, these are the standards by which all other efforts are judged.

The innovation in recent years is that sports games have taken on the style of television – probably because most people haven't seen the sport in real life and only know it from the world of instant replay.

EA perfected this with their excellent *John Madden's Football* and *EA Hockey*. And then perfected them yet again...

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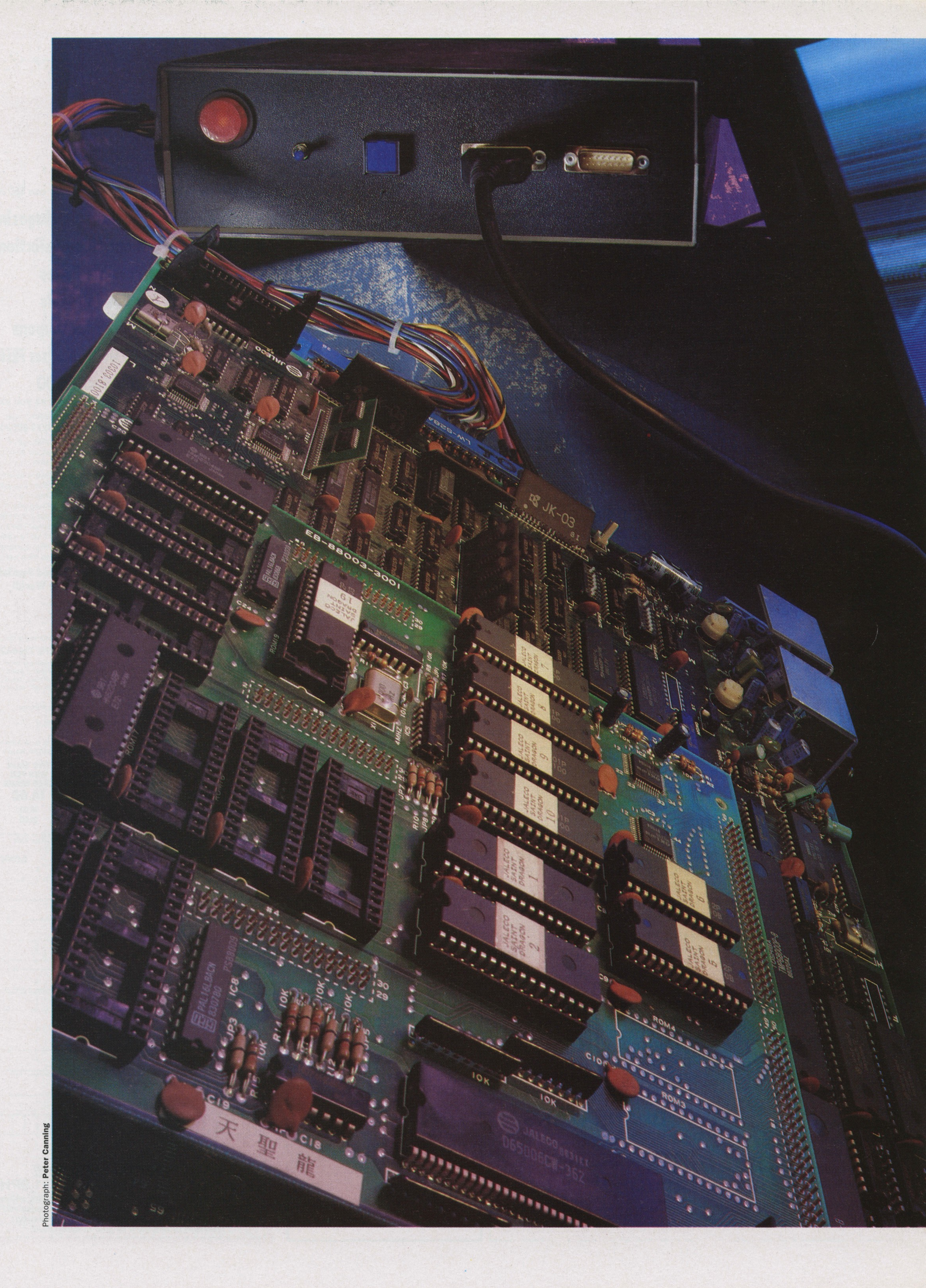
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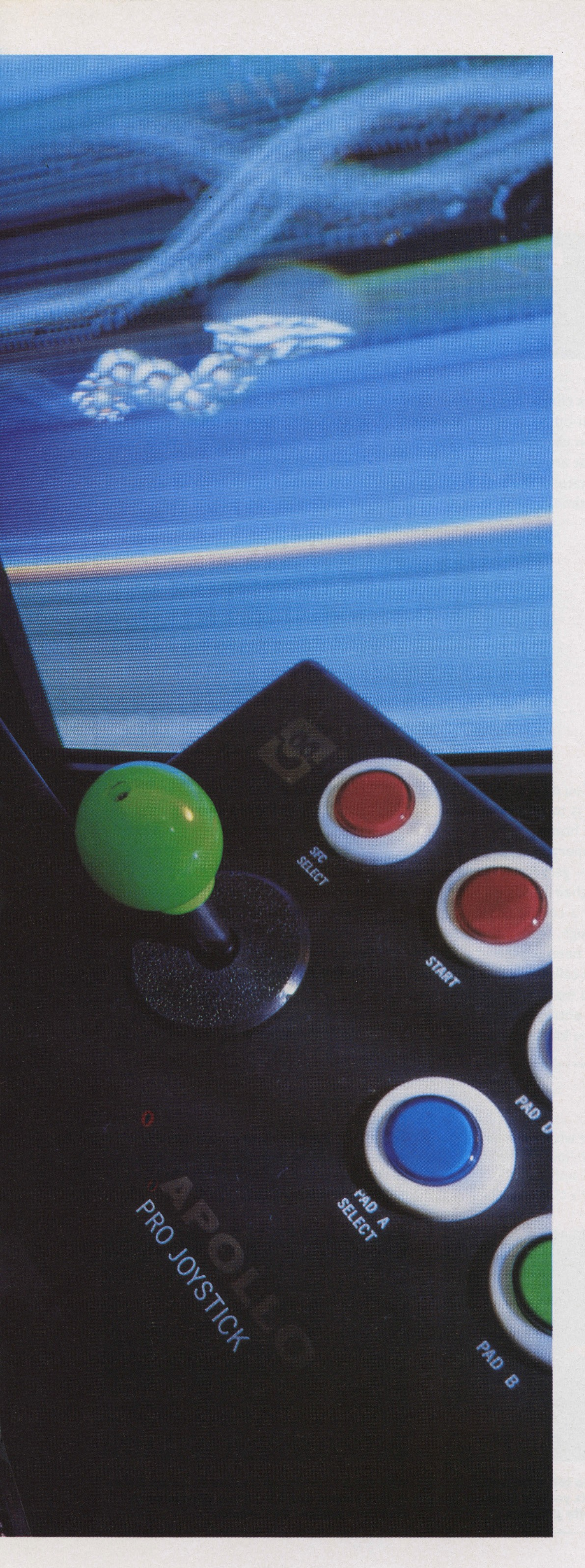
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Photograph: **Peter Canning**



Firing the Supergun

Ever fancied playing your all time favourite coin-op in the comfort of your own home? With a Supergun it's easier than you think...

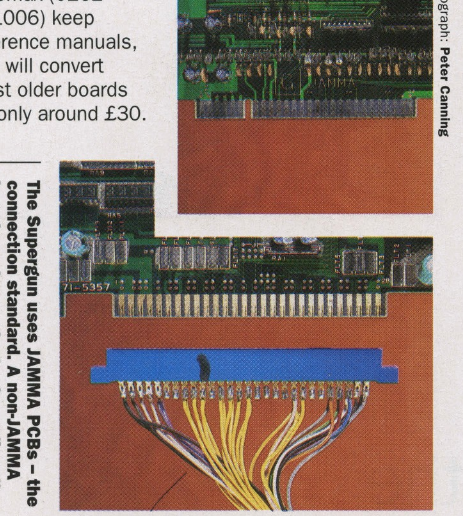
The golden age of the coin-op might be well and truly lodged in the past, but for many gamesplayers, older machines still hold a certain magic. Ever wondered why seaside amusement arcades are often packed with the oldest games? Sure, daytrippers will play anything

JAMMA-standard boards

JAMMA is a PCB connection standard set by the Japanese Amusement Machine Manufacturers' Association. It was designed to help the arcade manufacturers in Japan to agree upon a standard for the connection of arcade PCBs to arcade cabinets. By this time the industry had quickly cottoned onto the idea of replaceable boards – arcade owners simply had to remove a board from a machine and stick in a new one. From 1987, most PCBs became JAMMA compatible.

Because the Supergun is designed to work only with JAMMA boards, older non-JAMMA PCBs require an adaptor loom to be wired off – something best left to a specialist. The main reason for this is that it's complicated – it requires reference to the manual for the pin-out diagram – often missing with older PCBs.

Companies like Euromax (0262 601006) keep reference manuals, and will convert most older boards for only around £30.

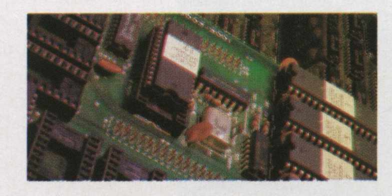


Photograph: Peter Canning



The Supergun uses JAMMA PCBs – the connection standard. A non-JAMMA board needs an adaptor loom (inset)

Continued



as long as its cheap, but for the average coin-op fan there's usually a few cast iron classics hidden away in a corner that are worthy of attention. State of the art? Well, hardly. But time doesn't taint great gameplay. You'd be surprised just how easy it is to play games like these in the home.

The current range of boards is vast, and all are destined to get cheaper

The Supergun is hardly a new piece of kit – gamesplayers have been able to get their hands on various versions for a couple of years. Funnily enough, before that, the UK market had been promised a slicker-looking unit called the Energiser, but this failed to materialise, leaving it to Far Eastern entrepreneurs to design what became known as the Supergun. The Supergun Deluxe is the newest unit, and comes from Raven Games in London. It is basically a simple box containing a five volt transformer, JAMMA board interface, Scart lead, and credit selection button. This plugs into a Scart socket-equipped television or monitor, allowing the player to chose from a vast range of titles.

But does the system really have that much to offer? Isn't it just an elitist home system with ultra expensive games? Elitist? Yes, gloriously – just think how many top arcade games you can choose from. Expensive? Not necessarily. The Supergun **Edge** tested only cost £160 excluding a joystick. Some older game boards are now selling for as little as £20, making the whole thing look rather affordable, and positively bargain-like when compared to the price of some of the latest imported console titles.

Taking into account the age of the average purchaser, videogame nostalgia is playing a big part in the success of the Supergun. Classic arcade boards are fast becoming collectable, and this is mostly because good new games are increasingly harder to come by.

With expensive dedicated arcade machines like *Virtua Racing* currently dominating the arcades in

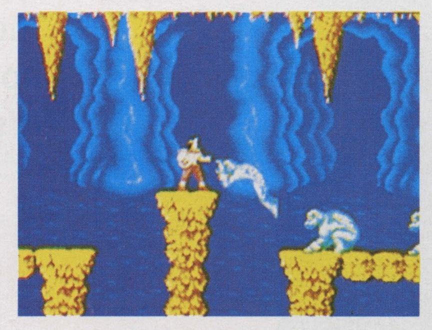
Arcade bargains for the **Supergun** – what to look for, and where to look...

In the same way a shrewd antiques dealer scours a car boot sale, an arcade game hunter on the lookout for classic coin-op boards should check out all the older seaside arcades, and be prepared to make offers on the spot.

But for more consistent results it's worth keeping an eye on the trade press, most notably the trade paper, Coin Slot International. And as in any secondhand market, prices vary widely, but dirt cheap PCBs are around if you look hard enough.

Edge tracked down some of the best bargains for the Supergun...

Rygar: (Tecmo 1986)
Price: £25
Not a overly popular game when released, *Rygar* soon gained a cult following. What *Rygar* has is fast and brilliantly compulsive and varied gameplay. Extremely challenging.



You'd be hard pushed to tell it from this screenshot, but for a six yearold game, *Rygar* has some exquisite graphics

Rastan Saga: (Taito 1987)
Price: £30
This classic hack 'n' slash arcade game never got a decent conversion for a home system. And you'd be surprised just how strong the gameplay is after all these years.



Why wasn't the Amiga treated to a conversion of this classic game? Anyone remember the less than brilliant C64 version?



Reckon that the Supergun is only ever going to be of any use for crusty old arcade games? Not so. Konami's *Xexex* at £100, while lacking a bit of playability in its UK format, knocks spots off many new coin-ops in terms of graphical detail and colour

terms of takings, interchangeable PCBs now lack the pulling power needed to generate decent coin flows. That, coupled with the competition faced by home consoles, is now making the price of the average PCB drop faster than ever before. And for the Supergun owner, this means more and more games to choose from.

The supply of cutting edge PCBs might dry out gradually, but the current range of boards is vast, and all are destined to get cheaper and cheaper. And, of course, the appeal of original arcade games, and not minimalised console conversions, is a big attraction.

To play a Supergun, all you'll need is a Scart socket-equipped television or monitor, sometimes referred to as the Euro-connector, or Peritel. But, importantly, the Scart socket needs to be able to handle an RGB signal running at 60Hz – the same signal that's outputted from imported NTSC versions of consoles like the SNES, Mega Drive PC Engine,

Continued next page

Monitoring **quality**

Running a Supergun through a Scart-compatible television isn't difficult. As long as the socket can cope with a 60Hz RGB signal. Compared to the system running on a specialist monitor, the control over the picture is limited. Things like colour balance and screen size often benefit from being optimised on a specialist monitor, like those made by Hantarex in the UK. Quadristandard models like the CT series offer Pal, Secam, NTSC, and NTSC 4·43 compatibility through a variety of sockets including Scart, nine-pin DIN, S-VHS, RGBI-HV etc. They're also perfect for systems like 3DO and the Marty that currently require an NTSC-compatible TV or monitor. Compared to the price of televisions that can cope with NTSC (£700+), Hantarex's monitors are quite well priced:
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A Hantarex monitor includes every kind of connection and TV standard you'll need. See for yourself (inset)

Shinobi: (Sega 1987)
Price: £20
An popular platform scroller that won fans everywhere with its action-packed levels. Those graphics are now looking a bit rough. For the price, though, who's complaining?



Shinobi **never looked that good when it appeared in 1987, so naturally, today it looks terrible. It plays wonderfully, though**

Xexex: (Konami 1991)
Price: around £100
There are two versions of *Xexex*, a European and a Japanese edition. The graphics in both are seriously beautiful, but track down the superior Japanese version, if you can find it.



Okay, it looks utterly fantastic, but the gameplay in the UK version isn't that hot, to be honest. It's just too hard for words

Strike Force: (Williams 1992)
Price: £125
Strike Force is the third defender game, and it uses impressive graphics and sound to bring it into the nineties. Surprisingly, it flopped in the arcades, but it still packs a mighty punch.

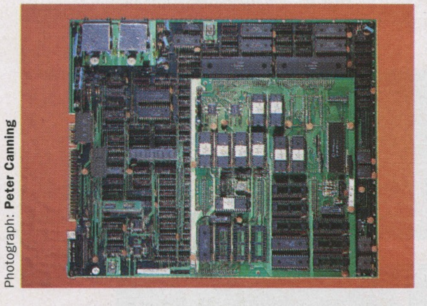


Strike Force **has some of the best explosions you'll ever see, and is only marred by some tacky incidental graphics (ie American)**

techview: arcade

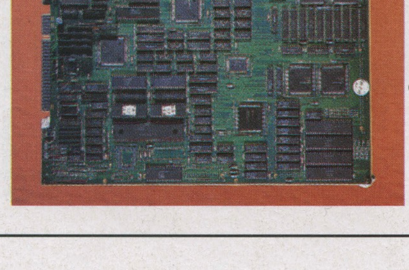
The old and new...

Not all arcade boards come as one unit. Some, like Capcom's CPS boards, come as a baseboard containing all the processing and graphics and sound chips, with top-mounted RAM boards carrying each game. The benefits are obvious. Arcades only have to remove the RAM board, and this costs a lot less than a PCB. Games like *Mercs*, *Strider*, *Saint Dragon*, can be obtained in top board format, and for the Supergun this is a cheaper way of picking them up. Don't be surprised, though, to see games sold with the base board attached. Older games are often kept attached for convenience.



Photograph: Peter Canning

Some PCBs keep the gameboard separate



Photograph: Peter Canning

Modern PCBs like Xexex use surface mounted technology

Continued

Neo Geo, etc. People familiar with Scart consoles like these will be no strangers to the full screen, full speed display that results. As long as your television or monitor can handle this kind of signal – you should have no problems running a Supergun.

Some problems arise from older Scart TVs that only work at 50Hz and, even worse, that can only handle a composite signal where the red, green and blue signals all go through a single pin. Sony and Philips televisions are a safe bet for 60Hz RGB Scart sockets, although many TV manufacturers are now incorporating 60Hz technology into their sets. Before parting with your cash make sure that the company supplying the Supergun will give you a refund should your television fail to be up to the job.

But what are the alternatives to something like the Supergun? How about a stand-up arcade cabinet? Surely the most extravagant choice in terms of price and the space it takes up. Second-hand prices vary from £150 up to about £350 depending on the age of the equipment and size of the monitor, with new machines clocking in at about £500-600.

The main advantage of an arcade machine is the control the monitor gives you over the display – it's possible to adjust things like colour balance, vertical and horizontal size, so that the game's picture can be optimised – things that can't be easily modified when dealing with a Scart input picture on the average television. Decent joysticks are another bonus. There is a downside, though. Removing boards is fiddly and nowhere near as simple as it is with the Supergun.

People who snapped up Active's erstwhile Powarcade system – a stand up machine without a monitor

For players that hanker after the latest beat 'em ups, the Neo Geo is the ideal machine

Mercs: (Capcom 1991)
Price: £40 (top board)
Like *UN Squadron*, *Carrier Airwing* et al, *Mercs* comes as a data board for Capcom's CP system board. A must for Capcom fans despite the Mega Drive conversion.



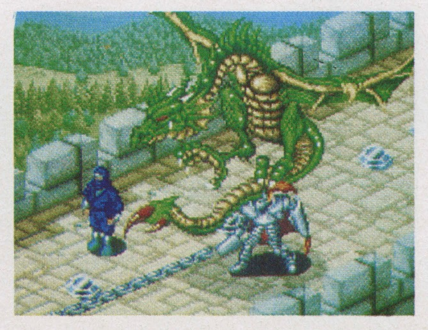
A threeplayer game in the arcades, *Mercs* is naturally just for two on the Supergun. Worth getting if you've got the CPS board

Saint Dragon: (Jaleco 1988)
Price: £30
The dragon-with-moveable-tail in *Saint Dragon* was bettered in Irem's *Dragon Breed*, but *Saint Dragon* is still worth a few goes. Hardly a must-buy though.



The gameplay's fun and the graphics are okay, but there are more classy shoot 'em ups around if you can find them. *R-Type* perhaps?

Dark Seal: (Data East 1990)
Price: £40
One of the better attempts at a fantasy-style coin-op – a cross between *Magic Sword* and *Gauntlet*. You choose a character and wander around castles hacking things to bits.

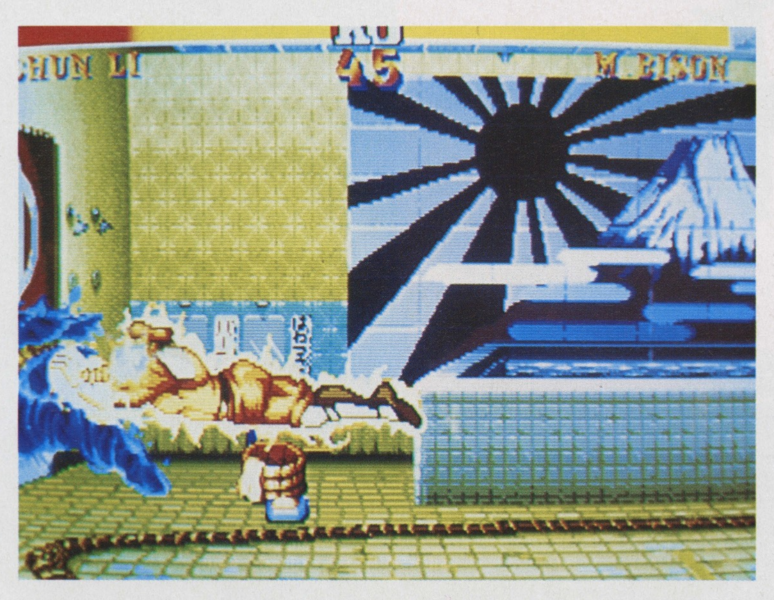


Some interesting graphics and fast paced action make *Dark Seal* worth the trip. And it's a darn sight better than *Arcus Odyssey*

– had no problems on that count. Sadly these systems are no longer in production.

Another alternative is the powerful Neo Geo system. Using exactly the same technology as in Neo Geo arcade machine, SNK's hardware has worn well since it was launched in 1990 and it's only the lack of variety in the games – something borne out by SNK's commitment to its arcade side – that impairs its appeal. For the players hankering after the latest beat 'em ups, though, the Neo Geo is the ideal machine. Newer games cost over £150 – cheap compared to new PCBs – but older classics like *Magician Lord* and *Nam '75* now come as cheap as £60.

The Neo Geo looks smart and is exceptionally well designed, but it's really geared towards the player that wants a state of the art console system, rather than a platform to play classic coin-ops from the past. Of course you could always buy them both...



***Street Fighter II Turbo* purists who even snub the recently released Mega Drive version (even when it's running at 60Hz!), could always fork out £400-£500 for the PCB. It'd be well worth waiting a few months for the price to drop, though,**

Renegade: (Taito/Technos 1986)
Price: £20
Technos are the only company capable of making a scrolling beat 'em up fun to play, and proof lies with *Renegade*, which is oodles more fun to play than *Final Fight*.



Don't those graphics look appalling in 1993? What you can't see is the really involving gameplay, though

Bargain PCBs

Rolling Thunder	£20
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Renegade	£20
Robocop	£20
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Shinobi	£20
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World Cup '90	£50
Dark Seal	£45
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Commando	£45
Moon Cresta	£20
Speed Rumbler	£50
Time Pilot '84	£45
Ninja Spirit	£100

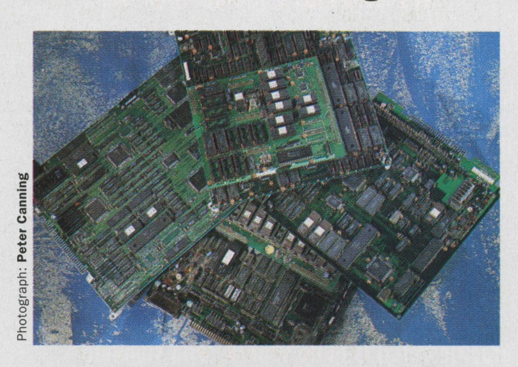
The **Supergun Deluxe**



Photograph: Peter Canning

The Supergun Deluxe costs just under £160 and was supplied by Raven Games in Kent, a long established specialist videogame supplier. 'We'd looked at other versions of the Supergun and thought we'd be able to improve on them,' reckons boss **Tony Ryder**. 'As far as we know every JAMMA PCB works, old or new, and we've tried about 50-60 different ones.' A selection of decent PCBs are available, too, and Raven will even customise the Supergun to buyers' needs. The other extra you'll need is an Apollo joystick costing £55, or even a modified Neo Geo joystick. To save money, though, there's a version that takes simple Mega Drive joypads. For more details, phone Raven Games on: 081 663 6822.

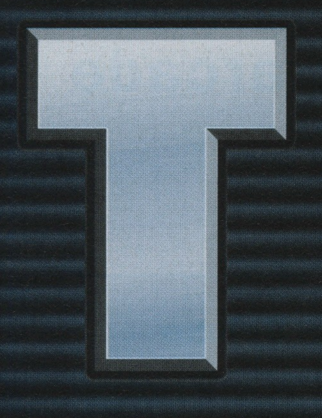
PCBs and where to get them

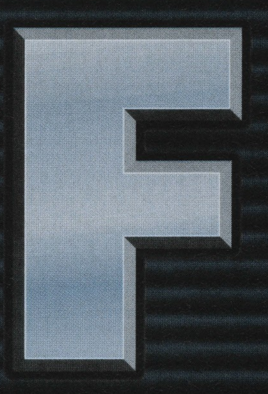


Photograph: Peter Canning

Many second hand PCBs can be found advertised in Coin Slot International – the weekly trade paper for the amusement machine industry, published by The World's Fair Ltd. For information on how to obtain a copy, phone 061 624 3687. Every week the classified section is packed with both trade and private ads. Here's a selection of companies regularly dealing in PCBs, but the best bargains are often found in the smaller ads.

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Multiplay Leisure	(074488 6282)
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"The graphic detail is quite superb, with stunning visuals and strong sense of image, TFX is quite often like watching a movie... when I first saw TFX my jaw dropped so far it took me 15 minutes to find it again! It's fast, good looking and fun." PC REVIEW







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Crash 'n Burn Super Empire Strikes Back **Dune** Return To Zork **Splatterhouse** EA Soccer **TFX**...

Testscreen

This month **Edge** has a packed testscreen section, including an exclusive review of the first 3DO game, *Crash 'n Burn*. We've got a cool four pages of grabs and info on this graphically outstanding shoot 'em up driving game on which the entire hopes of the newly launched 3DO are resting.

And, of course, there's also full reviews and ratings for all the best releases this month across all formats.

Remember if it's not in **Edge**, it's not even worth thinking about.

On page 98 there's a full review of the brilliant PC flight simulator, *TFX* – a game so good it makes *Strike Commander* look like its years old already. And there's EA's brilliant *FIFA International Soccer*, and the first of a new retrospective series on arcade classics – kicking off with that great hack 'em up, *Rastan Saga*.

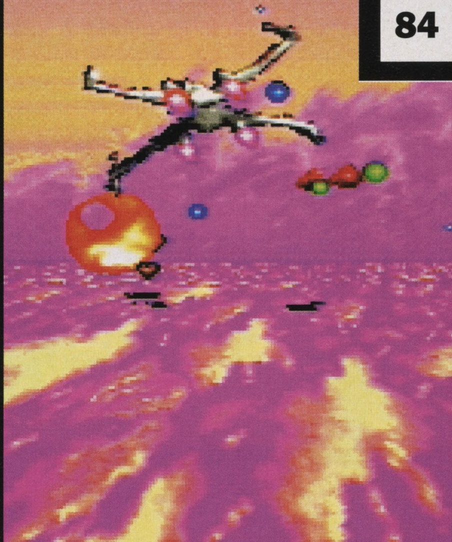
But that's enough intro.

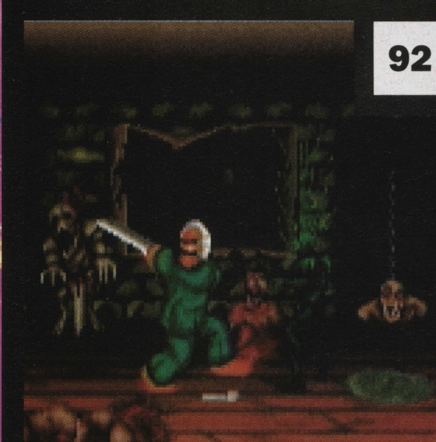
Just get to it.

















Crash 'n Burn



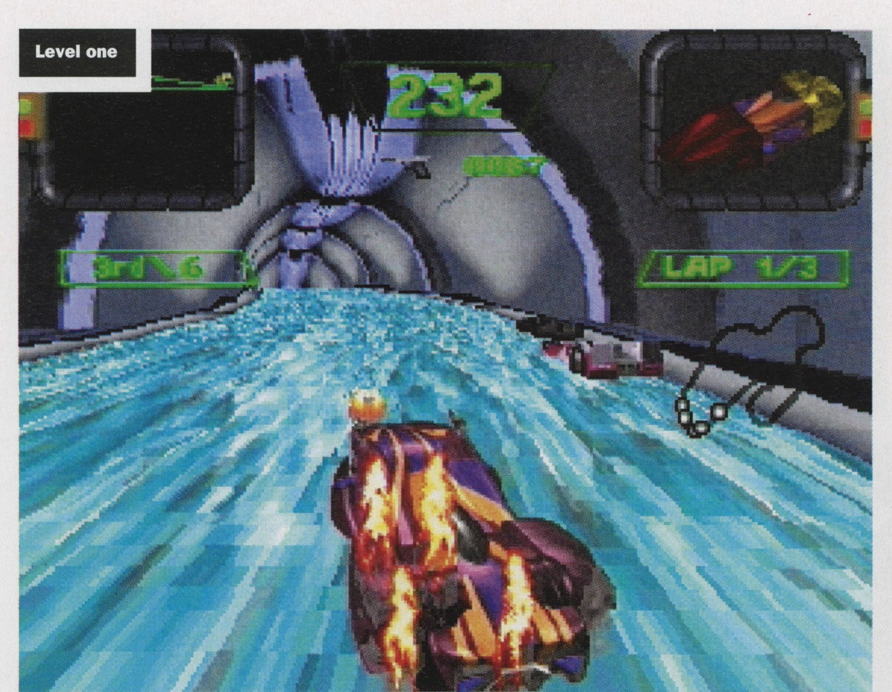
The level of detail in *Crash 'n Burn* is quite phenomenal: Crystal Dynamics have certainly set a very high standard with their first title. Although the screen may look a little blocky (above), it's moving so fast that you won't notice when you're playing. The outside view is best used for overtaking, and although the track is nice and wide, the opposition cars suddenly start swerving from one side of the track to the other. These flames may look damaging, but your car comes equipped with special body armour, and anyway a quick visit to the pits soon puts them out

Format:	3DO
Publisher:	Crystal Dynamics
Developer:	In-house
Price:	NA
Size:	1 CD
Release:	Out now (US)

For the 3DO to succeed it obviously needs exceptional software. If the games are poor, the machine will fail. It's that simple. A 'killer app', as the americans love to call it, is critical for the first few weeks of the 3DO's lifetime. It's something the Super Famicom had, and something the Mega CD has miserably lacked ever since its conception.

Crystal Dynamics are first up to try and convince us that the 3DO is the machine to have – *Crash 'n Burn* comes bundled with the Panasonic REAL Multiplayer, so buyers don't have much choice. But is it good enough to sell 3DOs, or does it leave the dreams of a certain Mr Trip Hawkins a little fragmented?

Let's start with *Crash 'n Burn*'s most appealing aspect, its graphics. Take it from us – since **Edge** saw the game at Crystal Dynamics back in July, things have progressed considerably. The frame rate is higher – approaching 20 frames a second – and the 3D







The 'Burn' in *Crash 'n Burn*, only becomes apparent once the action hots up (above). The exterior view (top right) gives the game a more arcade look but the inside view (bottom right) is best for targeting other cars. Your display provides you with weapon status, ammo count and a rearview radar

perspective is even more stunning – it's both original, and at times breathtaking. While the style of the game steers towards the simple, no-you-can't-turn-off-the-road type racer, the 3D environment more than makes up for it. Everything moves in 3D – hell, even the sky moves in 3D, and the road dips and twists with the most impressive banking effects you'll see outside of an arcade.

In all there are six circuits and each circuit has five tracks. The circuits range from the comparatively mundane Crash Course to the wildly undulating Whiplash.

There are two play options: Rally Racing and Tournament Racing. The former is a simple blast down the circuit – finish within the first three positions to qualify for the next track. Tournament Racing is an ongoing campaign, complete with weapon upgrades.

Yes, weapons. Not your ordinary 'bang, bang' weapon, but great 'whoosh, boom' ballistic missile-type weapons. *Crash 'n Burn* certainly lives up to its name, and all the cars have an impressive armoury. Weapons are essential and you soon learn the tricks of the trade – like allowing some of the harder opponents to overtake, then showering their vehicle with a barrage of missiles.

There are some disappointments. Quite a few, in fact. The sound's not great for one thing. In true american style the tunes are bland and rock-based. And then there's your car – it isn't the most responsive thing in the world. You have to start turning early in order to negotiate the corners. But even if you don't, your car can't fall of the edge of the track.

And remembering this is a CD-only system, the loading times are a bit offputting – they're especially bad considering the 3DO's 300K/s drive, and this is something that becomes more and more noticeable.

As the first game for the 3DO this is impressive enough, and certainly challenging. But then for $699 (with free 3DO machine) what do you expect?

Edge rating: **Eight/**10

Circuit **one**

The first circuit takes after its name Crash Course and acts as an introduction to some of *Crash 'n Burn*'s many aspects. The main competitors are introduced as are some of the basic play elements ie, kill or be killed.

Continued next page

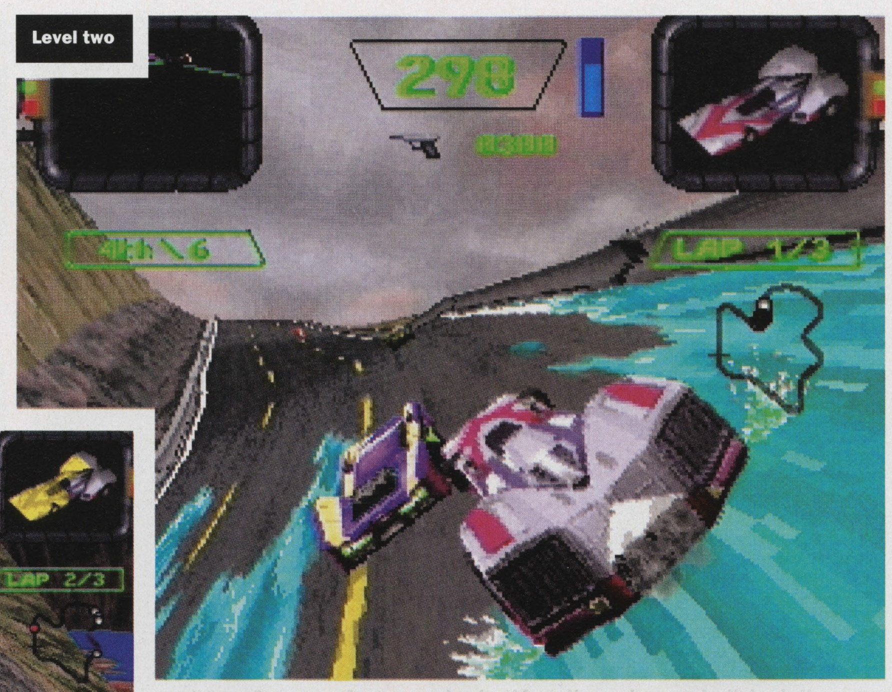


These are your main competitors. These digitised actors each go through the usual pre-race scare tactics. The car of your choice is also displayed as a rendered rotating image

Circuit **two**

Whiplash contains some of the most undulating and treacherous courses on *Crash 'n Burn*. The tracks are tricky to negotiate and you'll need more than a fair dose of turbo boost to help you climb some of the hills. Again the road moves impressively, but what's more impressive is the way the surrounding scenery moves in true 3D.

Level two



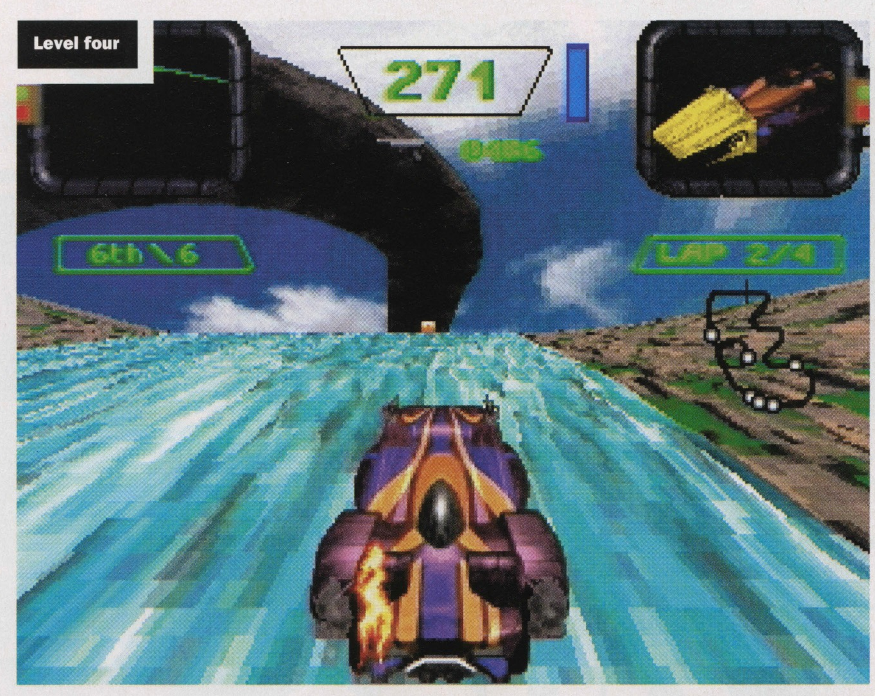
The amount of opponents are limited (only six) but there are 'drone' cars that also race around the tracks, and their high level of artificial intelligence makes them almost as tough as the opponent's cars. There are times when you'll be flying down a track, with only one car in front of you, but that car will try its best to cut you up and block your progress. If you do manage to overtake, your car suddenly turns into a moving target, and you have to desperately swerve all over the place to avoid a fusillade of laser and missile fire. The M4 was never like this...

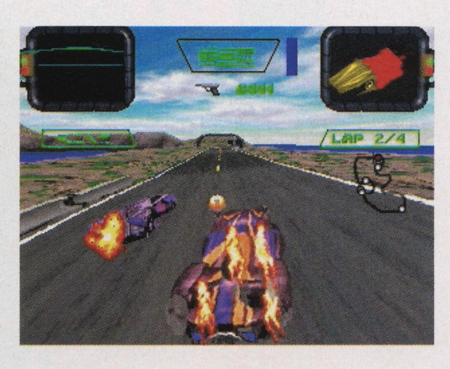
Level three

Circuit **three**

Shockwave – again this track is full of hills, but it also has more than its fair share of tunnels. Due to the narrow nature of these tunnels, you have to approach them with caution. There's great continuity throughout — if you destroy a competitor's car on a certain section of the track it remains there next time you go around.

The Shockwave circuit is tough, but every bit as impressive as it looks in these static shots. A tunnel (above) looms into view, but by the looks of things you have heavy traffic to contend with. Everything moves in 3D, not just the track, but everything surrounding the track – the sky, the clouds, the canyons, everything. It proves that the 32bit machine has well and truly arrived. Travelling at 247mph downhill, towards a very tight bend is not normal practice for racing games. Then again *Crash 'n Burn* is no ordinary race game...





Currently in sixth place, and a section of the track appears above you. One of the most annoying aspects is the way the car handles, making overtaking (above right) slightly tricky

Circuit **four**

Later on in the Firestorm circuit, transparent tracks can be seen (or rather, seen through). These are very impressive and are well worth checking out. The action is now even harder than before and you really have to use all the weapons to get past some of the tougher opposition.







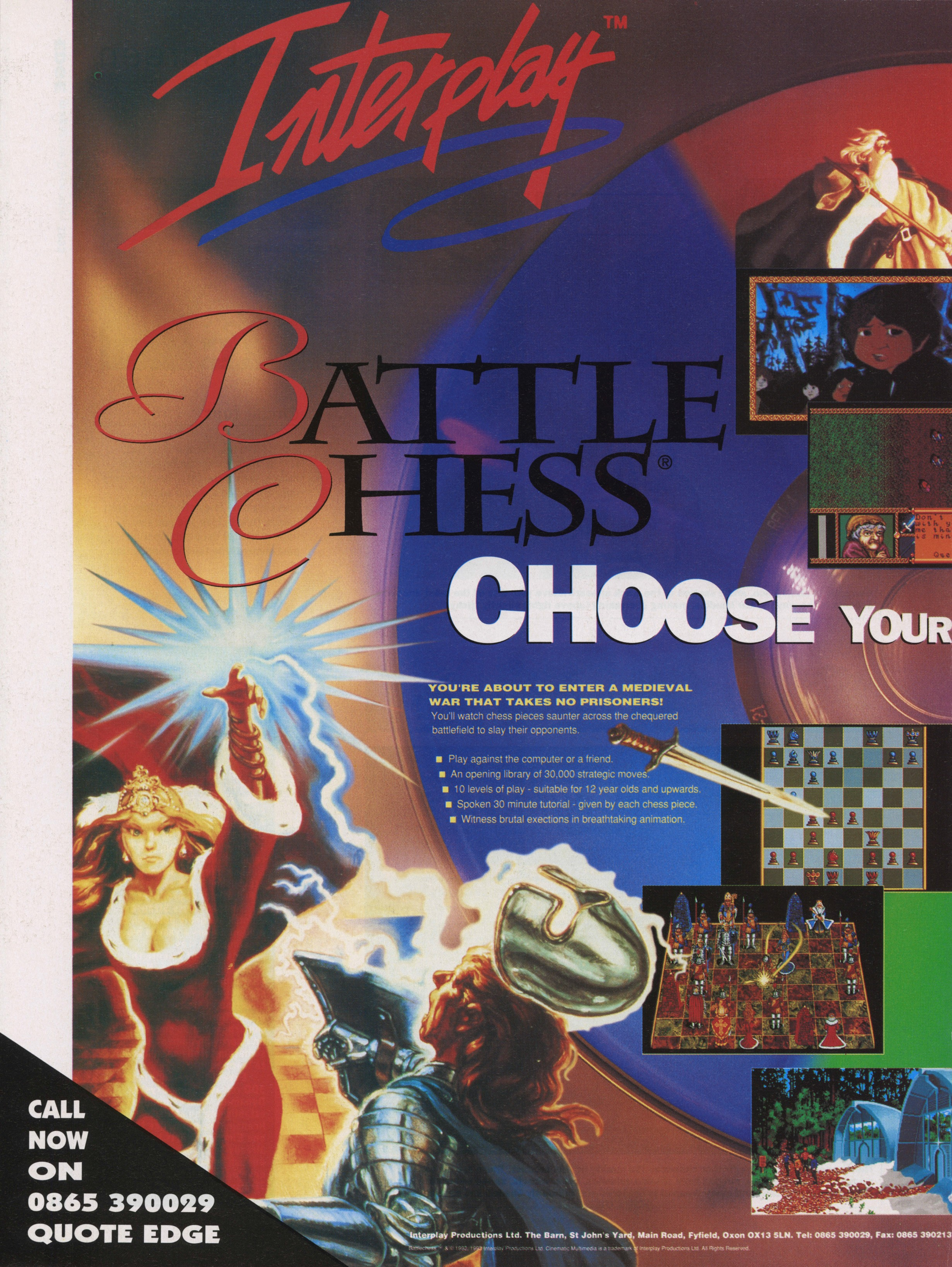

The weapon select screen further enhances the quality of this product. There are six main weapons to choose from, ranging from shields, missiles, guns, wheels, speed enhancers and special weapons. Each and every weapon is rendered and brilliantly shaded and animated (top)



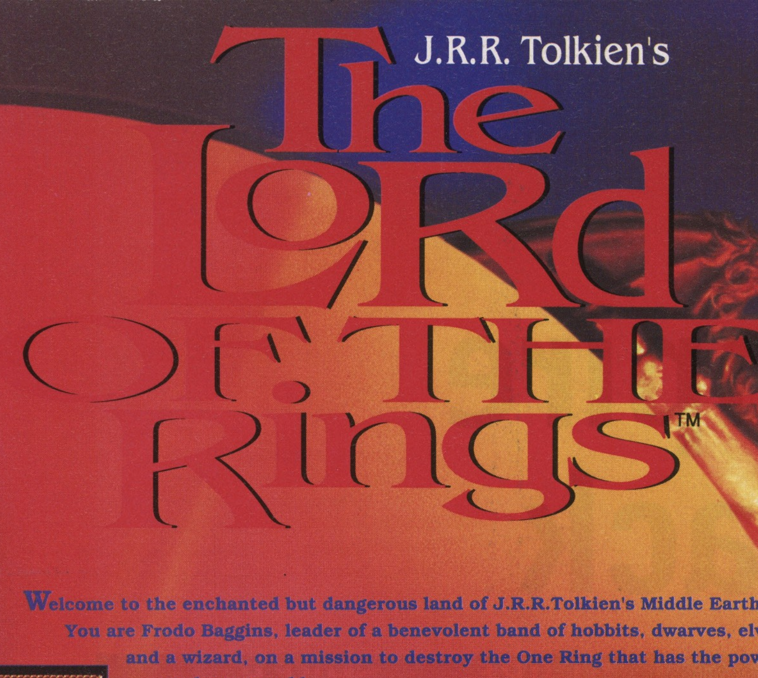
Crystal Dynamics, the creators of ***Crash 'n Burn*** and ***Total Eclipse*** (see p19), is a small company based in Palo Alto, California. Formed by Dave Morse, boss of the New Technologies Group, and the team behind 3DO's hardware, the company has already established itself as a new breed of games producer.

Company boss Strauss Zelnick allegedly pulled in a million dollars a year in his previous role – as ex-President of Twentieth Century Fox, no less. Now he heads up Crystal Dynamics, steering the company in the direction of Hollywood production techniques while the programmers concentrate on improving gameplay – something Hollywood has yet to learn about.

Expect to see a lot more 3DO releases from Crystal Dynamics – the company is establishing an affiliate licensing program, like the one Electronic Arts has already setup, where it will publish and market other developers' games for the 3DO system.



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C I N E M A T I C  M U L T I M E D I A

DOS

Super Empire Strikes Back

Format:	SNES
Publisher:	LucasArts
Developer:	Sculptured Software
Price:	£50
Size:	12 meg
Release US:	15/01/94



Out of all the 20 levels, Dagobah's two sections are graphically the most impressive. Three layers of parallax move both in front and behind the character. Once The Force is learnt your quest is made easier

What is it with the majority of SNES software? Everywhere you look there seems to be a variant on the platform theme. With the exception of Ocean's *Jurassic Park*, most film licences also tend to follow that well-worn path of the platform genre.

Super Star Wars was a little different – all right it did have many platform sections, but the addition of some rather nifty Mode 7 sections and a wonderfully orchestrated soundtrack helped to lift it above the crowd.

Sculptured Software are hoping to follow up on last year's success with their sequel, *Super Empire Strikes Back*.

So what have they got in store for us this time? Well they obviously believe in that old saying 'if it ain't broke, don't fix it', because it all plays and feels very similar to the original

Level one



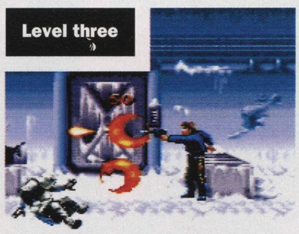
The first level takes place on Hoth. Unlike many of the enemy here, the boss is mechanical

Level two



Still on the planet Hoth, you go underground. A snowman tries to 'freeze' your progress

Level three



The third section on Hoth and Han Solo joins the story. Storm Troopers also appear now

Level four



The first of two Mode 7 sections involves flying from Hoth to the nearby Rebel base





Bespin, cloud city, is the highest part of the planet (above left). The second Mode 7 section is by far the best. On approaching the cloud city (above right) you can fly both above and below the clouds

Mode 7

As in the first game, Mode 7 has been used to spice up the action. The flying sections are not as impressive as in the first game, though. The 3D is not as convincing and sections like the asteroid field appear to have been rushed. For example, the side scrolling shooting section is very unplayable – your craft takes up half the screen and can barely move.

version. In fact, it's too damn similar.

You start the game playing Luke on the ice planet Hoth. You first have to blast your way across the icy dunes to confront the boss at the end. This level also includes a ride on the back of a Taun-Taun – Luke uses the creature to aid his trek across the planet.

Chewbacca and Han Solo are once again brought into the game as the story unfolds, but the action can get a little repetitive. This time round the Mode 7 sections include flying a Snow Speeder towards a marching army of imperial AT-ATs, and towards Bespin, the cloud city. Sadly, Han Solo's Millennium Falcon section is nothing to write home about and looks every bit an afterthought.

Graphically, *Super Empire Strikes Back* is better than *Star Wars*. The bosses are bigger, the levels more varied, and that rendition of the Star Wars theme tune accompanies a host of new soundtracks which add much to the overall feel of the game.

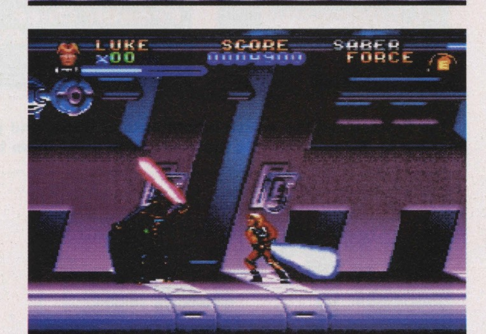
But it's all so similar. It follows the same level-boss format and in so doing it quickly losses its appeal. But then again, the original was criticised for being way too easy, and Sculptured Software *have* listened to the critics. This version's rock hard.

If you liked the original – and many of you did – then *Super Empire Strikes Back* is worth a look, but don't expect any radical changes.

The story has moved on, but the play mechanics remain the same, and there's still that irritating slowdown when the screen starts to get busy.

Edge rating: **Six/** 10

Final level



The last section takes place at the reactor. Here the Imperial Storm Troopers are meaner than ever and can now shield themselves (top) from your attacks. The final battle is – as if you didn't already know – against a suitably black-caped Lord Vader. And old Darthy is very difficult to hit. Laser fire is useless and so a battle of the light sabres (above) is required to kill him

Platform **sections**

Again, platform sections make up the majority of the game. But this time they're a lot more challenging, and although not as big as the original's, there are more of them. A useful feature is the way the characters jump – they can perform a somersault in mid-jump, like the move in *Revenge Of Shinobi* on the Mega Drive. This helps in negotiating some of the bigger gaps. The Left and Right buttons are also put to good use – they can be used to scroll the screen both up and down, again helpful before making a leap.



Flying through an asteroid field is a hazard, but the Millennium Falcon is no ordinary ship



The snow speeder is once again used, this time to attack a huge lumbering Imperial Walker



The next section takes place inside the Walker. Dexterity and The Force are essential



Dagobah is the picturesque level. And it's here that Yoda teaches you The Force

Dune

Format:	Mega CD
Publisher:	Virgin
Developer:	Cryo
Price:	£40
Size:	1 CD
Release:	Out now



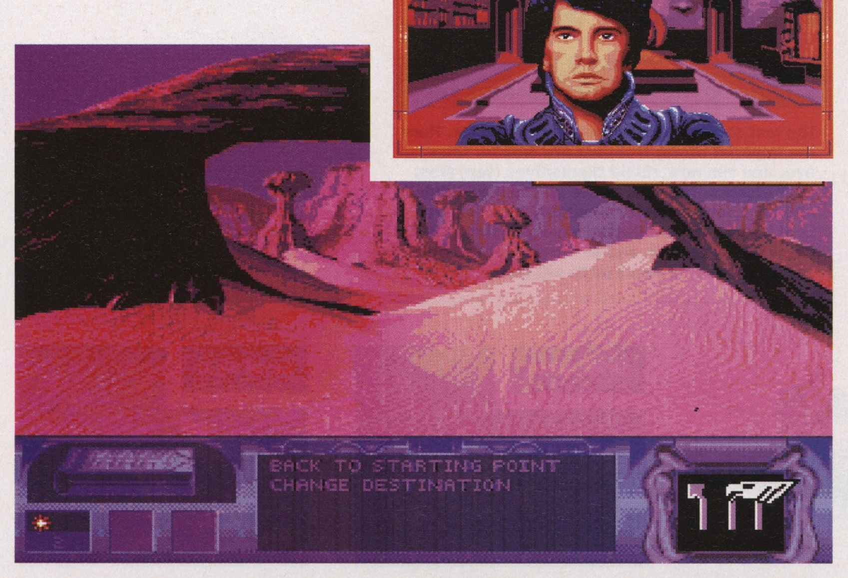
The Fremen are the native inhabitants of Dune, and you're going to have to play the diplomat if you're going to get anywhere in the game. You need them to work the mines and, later on, to fight for you

There's a very peculiar moment in this game when you watch your videogame alter-ego access his reference computer, in a full-motion sequence digitised directly from the film. Sure enough, up come all the planetary charts and data, computer graphics that were created years ago, then filmed, and now find themselves re-digitised into grainy video footage.

It's as if the game is winking at you, acknowledging its raison d'étre, which is to make something very simple seem extremely complex and involving, by going about it a very difficult way.

The funny thing is that it all somehow works. This heady mixture of stills, animation, video, digitised speech and music, strategy and role-playing games manages to conjure an exceptionally alluring atmosphere. Without that spell, which keeps your attention even through the longeurs of CD access, you'd be left with a combination of two simple games.

In one, the role-playing bit, you have to travel from place to place, talking to people and then travelling somewhere else as, step by linear step, you follow the story and discover the secrets of the planet, and your character. In the strategy bit, you have to



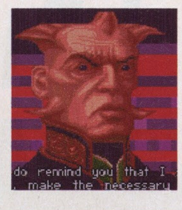
Take to the skies in an ornithopter, and travel at speed over miles of undulating dunes and rocks. This animated delight isn't really done justice by a static screenschot; even the most hardened of arcade battlers will duck as they pass under that ridge

The characters

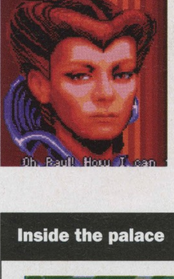
This is only a selection of the people you'll need to talk to and interact with in the game. Each character has their own voice and mannerisms, from the Jack Lemmon soundalike Gurney Halleck to the winking Duke, Leto Atreides

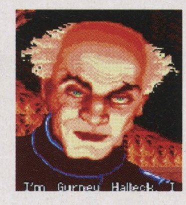


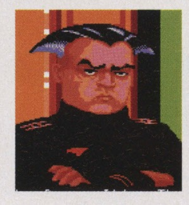


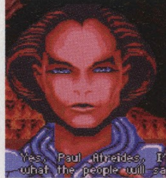














The characters in Dune

A key element of the game's success is its creation of a large number of other people for you to meet, befriend, serve or employ. There's a vast amount of sampled speech and you get convincing and fairly varied reactions to all your successes or failures. The programmers have also perfected a neat line in lip-syncing, and in creating personality through raised eyebrows and shifty eyes. Each person has a different function: **Duncan Idaho** (the one who looks like Norman Lamont) monitors the output of your mines, **Thufir Hawat** (bottom right) can defuse booby traps, and your mother (bottom left) can detect the presence of secret rooms.

Inside the palace



A postcard from the palace, showing places of special interest. Surrounding the Duke's throne in the centre are the stillsuit store, the main hall, the communications centre, and your own bedroom

Inside the palace

You play the part of **Paul Atreides**, son of the Duke, and the central character in the book (and the film) on which this is all based. With your family placed on the desert planet of Arrakis by the Emperor to supervise the mining of 'the spice' – the most precious thing in the universe – you begin the game in the Palace of Carthag, and it remains your home for the duration. Here you will find a number of the key characters you need to interact with, as well as the communications centre through which the Emperor will make his holographic demands for spice. It has many secret rooms, but tread carefully; there may be traps...

allocate and organise resources amongst your troops as you mine the land and defend it against your enemies, just as in *Yellow River Kingdom* on the BBC Micro (if you remember it), but with big trucks and more sand.

But when you find that all the people you meet along the way have their own individual and lip-synced voices that lend them real character, you're at first curious, then interested. As you marvel at the beautiful flying sequences and lovely backgrounds, you really begin to pay attention, until you're hooked, enthralled in a plot that has some genuine surprises and is packed with imagination.

Of course, it's not a perfect game by any means. It does play rather slowly, and the rudimentary scaffolding of the gameplay pokes unattractively through its smooth facade from time to time. But nonetheless, if you're willing to settle down with it, to become absorbed, you'll find plenty to get your teeth into. And it's great to see this on the Mega CD, which has hardly seen any titles that could be termed 'adventurous'. Until now, that is.

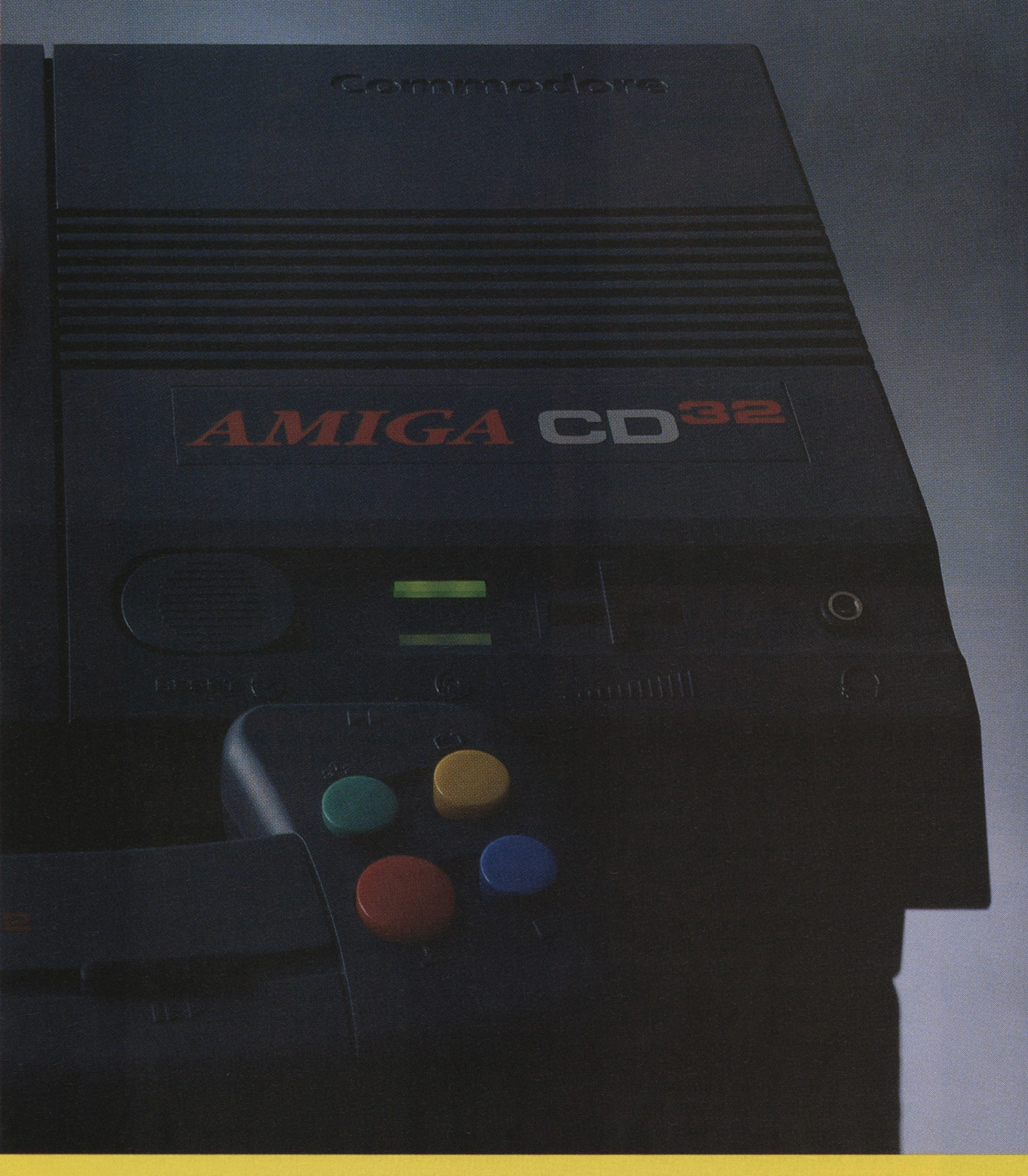
Edge rating: **Eight/**10

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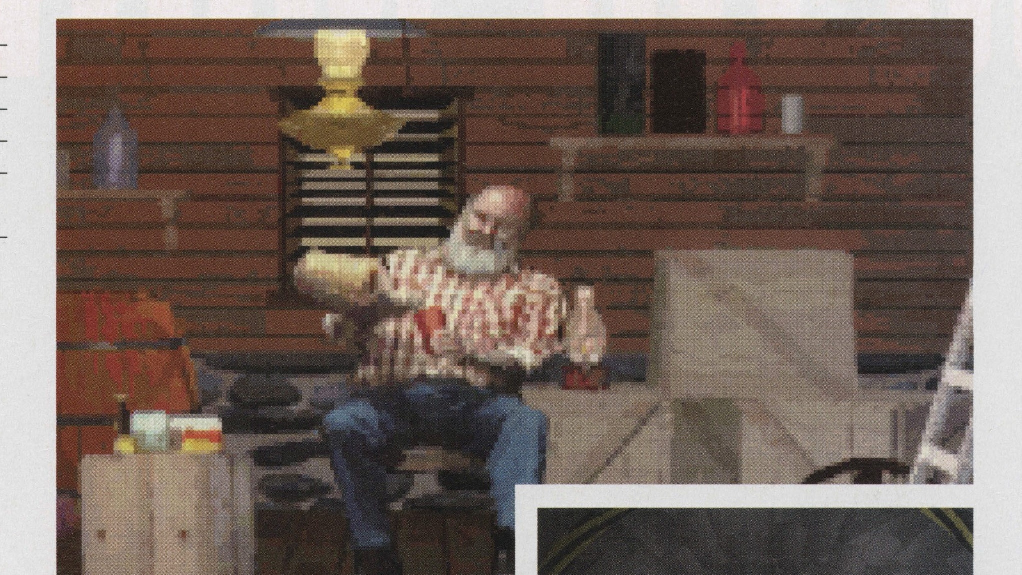
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Return To Zork

Format:	PC/CD-ROM
Publisher:	Activision
Developer:	Infocom
Price:	£46 (disk)
	£50 (CD)
Size:	12 disks/
	1 CD
Release UK:	Out now



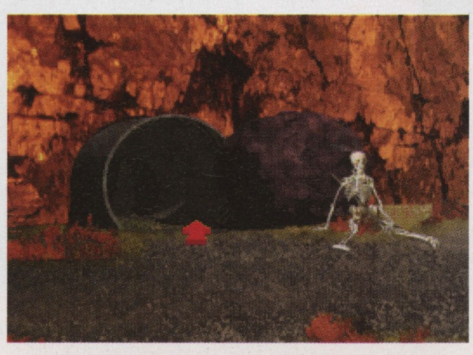
Old Boos the Miller is tough to pass until you throw logic out of the window and just guess

The Troll Caverns (above) are too dark to see in. Light a match and everything comes into view

Play *Return To Zork* and you will be 'entranced by a cast of Hollywood stars', or so says the game's packaging. This is the first clue that producers Infocom are really trying to push this game as a marriage between film and videogames.

Well, there's no Julia Roberts or Harrison Ford and the 'director' has had all the experience that helping out on a University play can give you. Biggest star in it is Sam Jones, who was in Flash Gordon, and who probably scrapes onto most casting agencies' 'Z' list. If he still has an agent, that is.

Okay, this is being a little unfair, but *Return To Zork* really does set itself up for a fall. The graphics and sound try very hard to give the game a cinematic feel, with sections of full-motion video (rather like *The 7th Guest*), a fair amount of speech and a score keyed to each location. However, instead of making the game more enjoyable, they basically just give it insurmountable flaws.



The way in to the Troll Caverns. You can examine the skeleton, enter the caves or retrace your steps

The real trouble is that the admittedly excellent graphics and sound make you expect far more than the average point 'n' click adventure that they conceal. In a typical location you can see every detail gloriously rendered, but you can only pick up the one or two items that are needed for the extremely basic storyline. It's very frustrating: you can see a load of useful items in the background but you can't use them.

Interaction with the characters is similarly limited. Most of them have a little speech that they give when you first meet them, but then they clam up and give you a few stock replies – or usually say nothing at all. Most of the







Moordock's

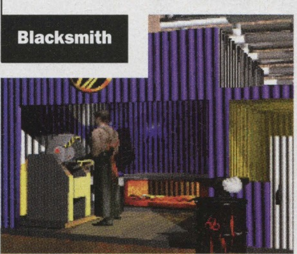
Enter Moordock's (above bottom) and you'll find the one-armed Moordock (above middle). He'll challenge you to a game of Survivor (above top). It's like chess with two pieces but it's ludicrously easy and almost impossible to lose

Beyond the town lies the Whispering Woods – dark, spooky... all right, it's a maze



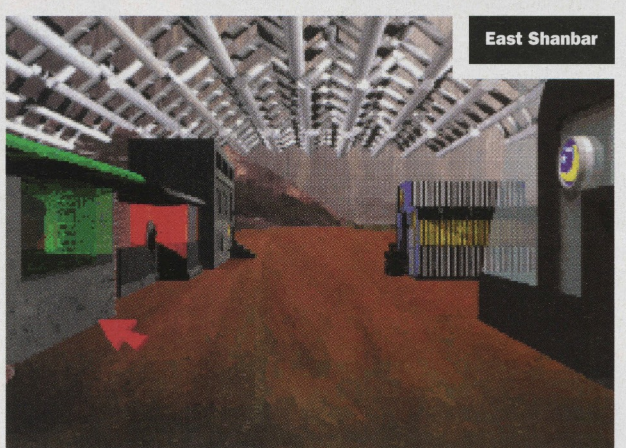
Woods

If you beat Moordock at Survivor he'll give you a blunt sword. Now, just opposite Moordock's is a Smithy (below left). Present the sword to the blacksmith (below right) and he'll sharpen it for you. Oh, how difficult



Blacksmith





East Shanbar

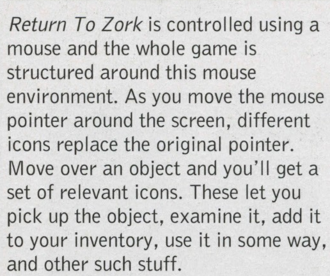
Playing **Zork**

Return To Zork is controlled using a mouse and the whole game is structured around this mouse environment. As you move the mouse pointer around the screen, different icons replace the original pointer. Move over an object and you'll get a set of relevant icons. These let you pick up the object, examine it, add it to your inventory, use it in some way, and other such stuff.

It's a fairly simple system to use but it makes the gameplay fairly simple too. You're limited to whatever the mouse picks up on as you move it around screen, so you always know exactly what options are before you. The whole game then becomes a multiple choice exercise – mere trial and error.

It's not a fault of this game alone, plenty of others have had similarly linear gameplay, but the restrictions are far more noticeable when they're in a visually impressive game world rather than an obviously computer generated, cartoon world.

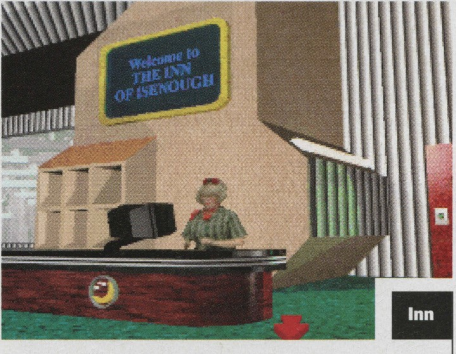
Return To Zork is easy to play but doesn't offer any real challenge at all.





Store

The door to the general store in East Shanbar (above) is sealed. Examine the door more closely and you'll find a note (inset) telling readers to take what they want if they can get into the store



Inn

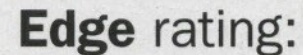


Inside the Inn you meet Molly (above), the receptionist. Pick an object from your inventory, like money, and you get a number of actions to choose from – give her the money, throw it at her or just drop it on the floor

FMV and character scenes are pretty well executed but some of the acting is very hammy, which also doesn't help much.

As a game it's far too linear, and the only places that hold you up are those problems that don't seem in the least bit logical.

Return To Zork deserves a bit of credit for trying to bring something different to the videogame world. But the programmers at Infocom should have remembered that gameplay needs at least as much attention as anything else. E



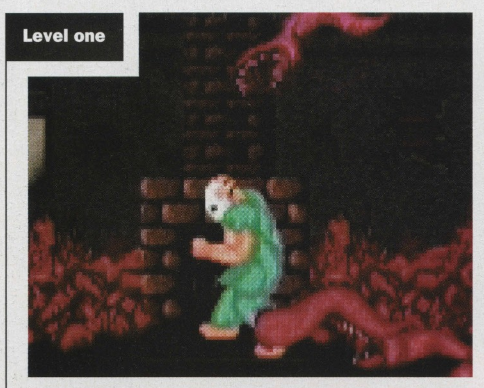
Edge rating: **Five**/10



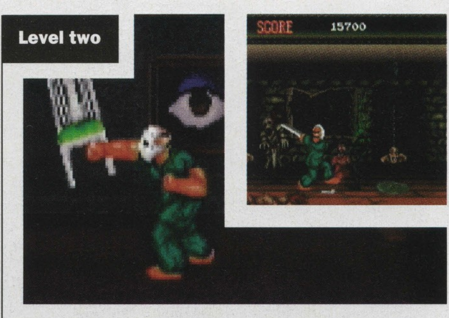
World famous international film director Peter Sprague (left) helps top Hollywood star Sam 'I was in Flash Gordon' Jones (right) get into character for his career-saving role as Bowman in *Return To Zork*

Splatterhouse

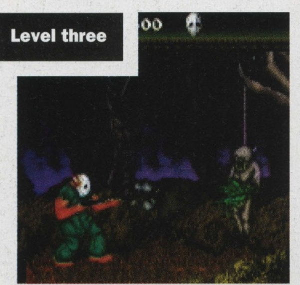
Format:	FM towns Marty
Publisher:	Ving
Developer:	In-house
Price:	£90 (import)
Size:	1 CD
Release:	Out now

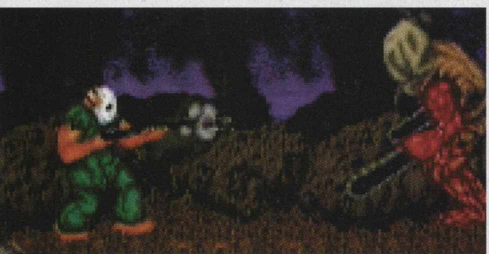


Splatterhouse **is full of weird and horrible creatures: here an army of fat worms unite in a big attack. Watch for the surprise at the end!**



A poltergeist watches over the end of level two (above). Slash the ghouls (right) to meet him







Level three presents you with your first real challenge. These hanging corpses need a few well placed shots (above). This chainsaw wielding 'thing' (right) is the hardest thing so far to kill. Slide attacks work best, but watch those saws...



One of the most varied, level five has many surprises. These hands (top left) cause all sorts of trouble. Portraits come to life (middle left), and some of the creatures refuse to lie down (bottom left). Your girlfriend (above) suddenly shows her true colours...

Namco's *Splatterhouse* never really set the coin-op world ablaze when it surfaced in 1988. Even though it used horror – a rare theme in the coin-op market – the game's mechanics were dull, leaving just the 'goo' factor to make it worth a look.

The game can best be described as a horizontally scrolling hack 'em up. Resembling Jason from the Friday The 13th movies, your character has to slice and dice his way through all sorts of ghastly creations.

There are seven long stages, each with its own gory theme and a hideous boss to defeat. Creatures crawl in and around the scenery, goo drips everywhere, and the enemies' attack patterns constantly change. This game may be old, but it's still very challenging.

Cosmetically, *Splatterhouse* can't be faulted: animation, sprites, colour – everything you'd expect from a conversion of the coin-op is here. The sound is also spot on, the tunes and the sound effects create a truly ghostly backdrop to an already eerie looking game.

Playing just like the arcade version, *Splatterhouse*'s only conversion fault lies with the FM Towns itself – as with last month's *Tatsujin 2*, the screen display is very narrow. This isn't a software problem, but a fault of the hardware. The FM Towns has a restricted sprite window; It can have up to 1,024 hardware sprites onscreen at any one time, as long as they're inside this window. This is something that the PC Engine didn't have to worry about when it played host to *Splatterhouse* three years ago, resulting in an another arcade-perfect conversion.

And there lies the main problem with *Splatterhouse*. Three years ago it would have been acceptable as a console game. Technically, it's fine and it can be fun for a short while, but nowadays gameplay this stale just doesn't cut it.

A skillful effort, nonetheless.

Edge rating: **Five/**10

Thanks to: **Raven Games**, tel: (081) 663 6810 for supplying **Splatterhouse**





November 11 – 14
London Olympia

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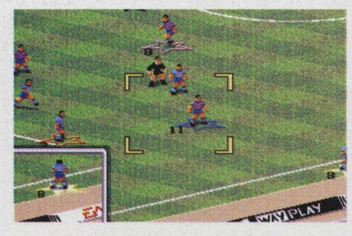
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FIFA International Soccer

Format:	Mega Drive
Publisher:	EA
Developer:	Extended Play Prods.
Price:	£50
Size:	16 Mbits
Release UK:	December



With loads of animation to watch you'll be oohing and aahing with the rest of the crowd when the opposing keeper taps your close range shot over the bar. Unless of course it's your goalkeeper, in which case you'll be telling everyone how skillful you are, and how you meant that to happen



When your goalie has the ball, press button C to bring up this little square window to place your goal kick

Once upon a time there was only one football game. Well, only one to speak of. It was called *Kick Off*, and for a long time it, and its numerous updates, were regarded as the ultimate suite of footy games.

Until Sensible Software shamelessly set about taking all the best bits from every previous soccer sim and coming up with an unbeatable blend of playable, yet involving football antics. Recently, a Mega Drive version of *Sensible Soccer* was announced, making it look like Sensible had it all stitched up.

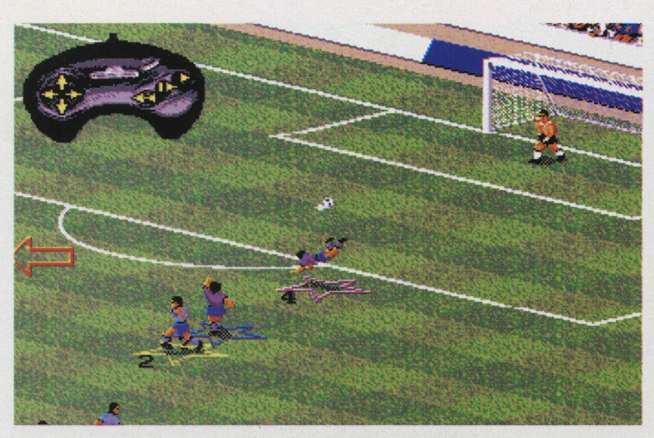
But it was only a matter of months before the World Cup began and everyone was keen to cash in on the deal. Ultimately though, as everyone suspected, all eyes were on just two football products. One was *Sensible Soccer*, and the other, EA's *FIFA International Soccer*.

EA, previously undisputed Kings of the sport sim world, were considered the only ones capable of giving the Sensible boys a run for their money. So now that the games have well and truly arrived, what's the outcome of this titanic battle…

Well, tedious as it may sound, it's a score draw. Rather than go for the super slick perfection of *Sensible Soccer*, EA have gone for a slower-paced, graphically superior game that relies on atmosphere rather than ultra fast dynamics. Whereas *Sensible Soccer*



This is the rather lovely *Sensible Soccer* which although about football as well, is very different from *FIFA International Soccer*. It's going to be a tough choice for footy fans…



Here's another example of that animation and attention to detail as the defender clears with an overhead kick. Showoff!



It's often said (by people in the know) that if you can win the ball in the midfield, you can win the match. Here's an example of that theory

brings on an adrenaline rush through pure speed and head-to-head competitiveness, *FIFA International Soccer* gives you a real feeling of being there by setting the scene, giving you all the sights and sounds and all the detail of the real game, while also cramming in a load of features not normally seen in footy games.

For a start, when you play this game, you simply must link up to an amp to benefit from the superb sounds. The crowd constantly chants as the game plays, and more impressive still, adjusts to what's going on onscreen. Shoot for goal and a mighty roar goes up. Hit the crossbar and the roar immediately and seamlessly turns into a moan. Superb!

Next, the visuals. Isometric 3D has been used, and while this leads to a slower game, it also enables a lot more player detail and more animations, such as the usual mix of header, overhead kicks and a few new ones such as the back heel. The controls are all very friendly and even placing a ball from a goal kick or throw in is done effortlessly using a controllable crosshair (well, it's more of a window than a crosshair).

Add to this the seemingly endless list of play options and features not normally seen in footy games, like the adjustable areas of Defence, Midfield and Attack, and you've got an incredibly realistic soccer experience on your hands.

In one-player mode it's not, it must be said, quite as much fun as *Sensible Soccer*, and that's principally down to the difference in speed. But just plug in EA's new Four Way Play adaptor and you and three friends will still have a lot of fun.

Probably the best way to describe *International Soccer* is not so much a console football game as a Saturday afternoon big match simulator.

Edge rating: **Eight/**10



Tactical players can allocate an area of pitch to be covered by the Defence, Midfield and Attack



Here we are in a fourplayer game. Each player has a coloured star to determine who is who. Thankfully the colours don't clash, so you can always tell who you are when it all gets hectic



There aren't that many formations to choose from, but they do each make a lot of difference to the match



If you've not got a lot of imagination, you can motivate your team to just perform one specific type of play

TFX

Format:	PC
Publisher:	Ocean
Developer:	DID
Price:	£40
Size:	9 disks
Release UK:	11/93





The level of ground detail, the stunning angles from which you can view your fighter... *TFX* looks almost too good to play. But you just sit back for a second to admire the scenery and you've got an incoming missile (above). Graphics like these leave Origin's *Strike Commander* looking like last year's flight sim

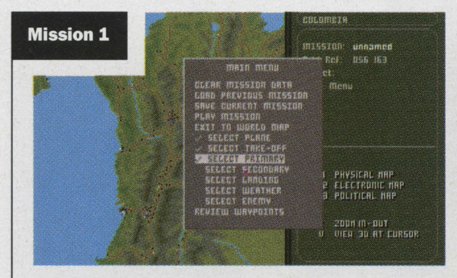
After the rolling contours of Novologic's *Comanche* and the texture mapped excesses of *Strike Commander*, it's a relief to be dealing with good, honest polygons again. There's no better way of conveying the senses of scale and speed that are essential in a flight sim – especially when they've been handled as well as this.

The sophistication of *TFX*'s graphics engine allows it to run at a manageable speed even on a relatively humble PC. On a top end 486 system, meanwhile, the smoothness and detail of the graphics is staggering.

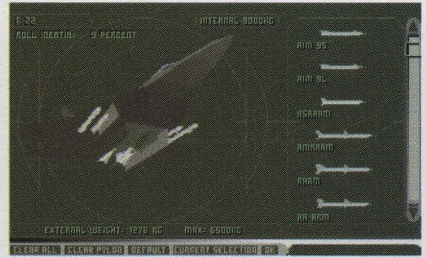
At any given time the screen will be full of buildings, trees and other aircraft, and crafty use of hazing effects makes sure that things that are far away really do look far away. This applies to the vertical as well as the horizontal axis, so those of an uncertain constitution would be advised not to glance earthwards from high altitudes.

This attention to detail extends to more

Mission 1



The UN Commander option in *TFX* allows you to design and fly your own missions. Here we're in the operations room, planning a raid on a small bridge in the heart of Central America



The range of weaponry to choose from, including air-to-air and air-to-ground rockets, is almost overwhelming. But you can just choose the default payload – it usually suffices



Engines on, reheat to full, and we're up in the air within moments. Modern fighter planes could probably use their runways widthwise if they really wanted...

trivial things as well. It goes without saying that enemy aircraft produce contrails from their wingtips when they pull high G, and that when you retract your undercarriage it really does retract, not just disappear.

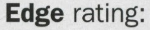
And if you've ever enviously watched fighter pilots on telly skimming along above the clouds, then this is your chance to try it for yourself – *TFX*'s clouds are actually clouds, rather than just a sheet of white. It's worth flying very slowly over enemy cities at night with all your stealth facilities deactivated, too, just to watch the tracer bullets streaming towards you, lighting up the ground beneath them in an almost cinematic fashion.

And this is before you've even begun to consider the game's 'virtual cockpit': when you press a key to peer over your shoulder and scan the sky for bogies, the instrument panel spins smoothly around in 3D, being made up from polygons just like everything else. This is useful as well as breathtaking, as it avoids the disorientation that can can occur when the view flips suddenly to another angle.

Graphics are definitely *TFX*'s strongpoint. In terms of the missions you'll be flying it's more ordinary – if difficult to fault. The game is tightly focused on aerial combat (*Tactical Fighter eXperiment*, remember) and, although you'll be blowing up plenty of buildings and ships using the elaborate range of tactical ordnance available, those hoping to bust tanks and strafe supply columns will be disappointed. The limited range of planes available – the F-117 Stealth Fighter, the Eurofighter 2000 and the YF-22 'Superstar' (hem hem), two of which aren't even in active service – could be frustrating, too, although they've each been simulated to a startling degree of accuracy.

TFX doesn't do anything you won't have seen before. Instead it takes familiar flight sim ingredients and takes them to whole new vistas of refinement.

It's totally beautiful to watch, and even if that means slogging through some humdrum old flight missions, hell, you'd be stupid to refuse for that reason. **E**



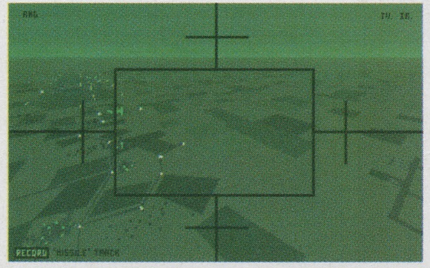
Edge rating: **Eight/**10



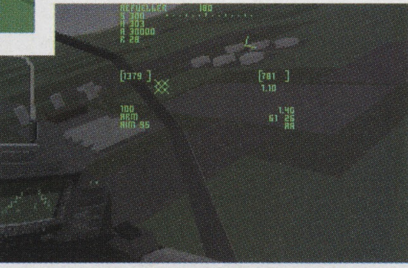
Exterior views always make for the most poignant flight sim moments, so *TFX* lets you study your plane from literally *every* possible angle (above). You can't go wrong with your standard cockpit view, though, especially when you can slide the instrument panel down slightly out of the way, or banish it altogether and rely on the straight head-up display

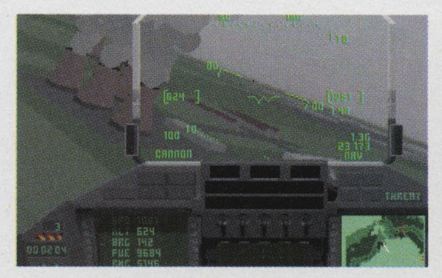


Flip to the virtual cockpit (above) and it'll scroll about as you turn your head (okay, press the 'turn your head' keys). If you then switch to an exterior view, the camera will pan smoothly out through the canopy. Impressive stuff...



As a military hardware fan you'll have been glued to your TV through the Gulf War, and you'll have seen plenty of film like this (above). It's taken from the cameras built into Cruise missiles and laser guided bombs. And (right) here's the view over the right wing – all courtesy of *TFX*'s virtual cockpit

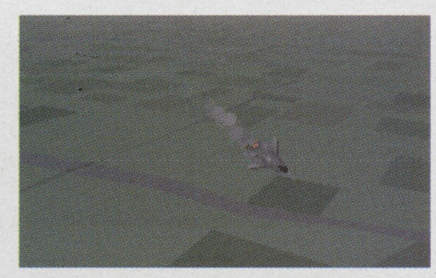




Resist the temptation to blow up the massive nuclear powerstations and other impressive things you might pass on the way – you'll be called straight back to base if you do



Almost on the target and up springs just what you were dreading – a couple of MiG-29s heading straight for you, missiles already locked. You are hastily given permission to fire

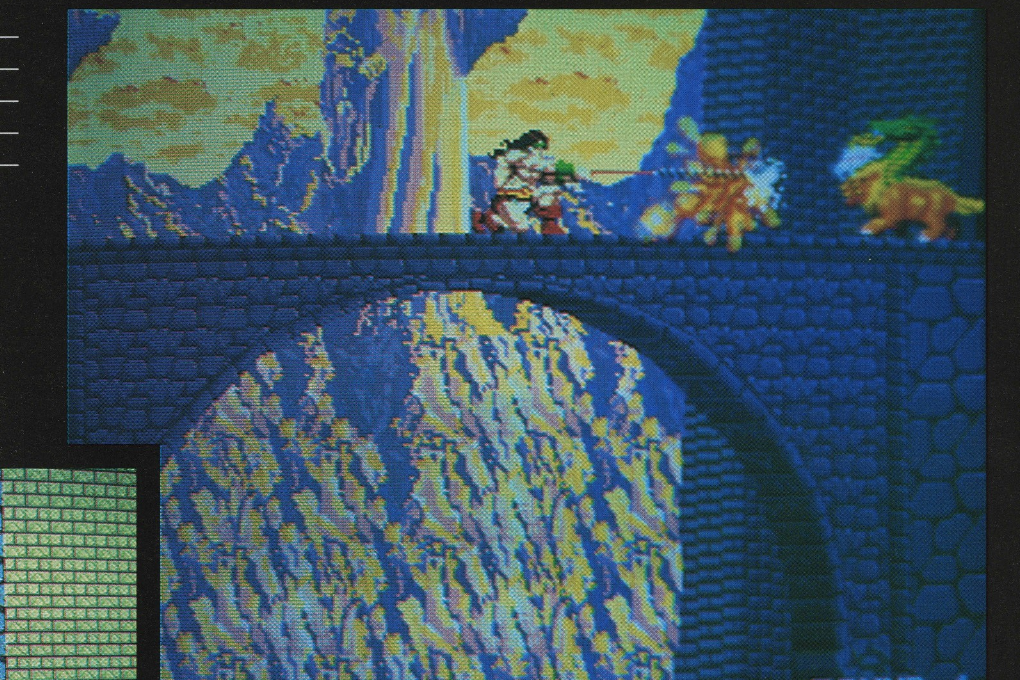


One slightly battered Eurofighter approaches its target. The bridge looks quiet enough, so bombs away, and let's get back to base. Another giant leap for UN peace-keeping...

A new section where **Edge** reflects on classic arcade games from the past, starting with one of the best platform hack 'em ups ever created...

Rastan Saga

Format:	PCB
Manufacturer:	Taito
Players:	One
Price:	£25-£35
Size:	NA
Released:	1987



One of the best things about *Rastan Saga* is the weapons – they just feel so good. The first level has the musclebound hero making his way to the entrance of this castle

This was one of the first games to introduce proper swinging ropes that the player has to leap between. Time it badly, and it's barbarian kebabs...

Six years ago, in an arcade far, far away, Taito released a platform based hack 'n' slash title called *Rastan Saga*. Back then it caused jaws to drop and eyes to bulge. Brilliant backdrops, a booming orchestral score and great playability made *Rastan Saga* a classic. Until recently such classics were destined to remain solely in the memories of those who played them, but Supergun owners can now play them in the privacy of their own home.

Some of you may be thinking, why? With the new 32bit machines ready to pounce, do we really want to be playing some ancient arcade game that looks badly out of date? Some of you won't want to play them, but that's only because you have no idea how good these original arcade games really were. And *Rastan Saga* plays as well now as it did in 1987. The music is still impressive, even by today's standards – the only negative aspect is the graphic detail. The parallax levels may have lost their 'wow' factor, but there's still plenty of detail in the landscapes.

And *Rastan* was one of the first games to use the level-boss, level-boss format that has since been copied to death.

It just goes to prove that game design hasn't made the advances that technology has. And for that reason alone *Rastan Saga* is well worth hunting out.



The start of the level includes a problem – how to get through the hole beneath...



Level 2, and the forest plays host to the strong man. Moving rafts are the next obstacle...



Photograph: **Adrian Ford**

The Core Design team, experts in programming for the Mega CD, prepare to face questions from an Edge reader... From the left, Core programmer Mark Avory, graphic artist Jason Gee, Edge reader Ian Gray, and Core's CD musician Martin Iveson

An audience with: Core Design

This is the part where **Edge** gives a reader the chance to interview top developers. This month *Ian Gray* meets **Core**...

So, here we are then. Up at Core Design in Derby. Ready to do an interview with the team behind the excellent *Thunderhawk* for the Mega CD – the first decent game out on this format.

Anyway, it turns out that **Edge** readers are brimming over with questions for the Core Design team. As you may recall, in issue one of **Edge** we invited you to send in questions for a Core interview. And we promised that whoever asked the best question would accompany **Edge** to meet Core.

Well, the winner was Ian Gray, a 23 yearold from Derbyshire. Ian works for a big hotel chain and has been into gaming for over ten years. He owns a Mega CD, SNES and an A1200. So here goes...

Words by **Edge**
Questions by **Ian Gray**
Answers by **Core Design team**
programmer **Mark Avory**
graphic artist **Jason Gee**
musician **Martin Iveson**
marketing chief **Richard Barclay**

Ian Gray: If each of your could change one part of *Thunderhawk*, what would it be and why?

Jason Gee I'd have more colours, but that's the machine's fault.

Ian: How many more?

Jason 252.

Mark Avory If we had more time there'd be more missions. You've got to strike a balance between getting the game out and putting a lot in.

Jason You could develop a game for two years, but by then it'd be out of date.

Mark There's still a lot of space left, about 150Mb. But as Jason said if you take two years over a game by the time it comes out... well, compared to what we're doing now it's a bit out of date.

Ian: The Amiga version of *Thunderhawk* had filled 3D polygon graphics. Why did you change this for the Mega CD version?

Mark Because the machine can do it! Sprites and texture mapped ground are a lot better than polygons.

Jason We used polygons first for buildings.

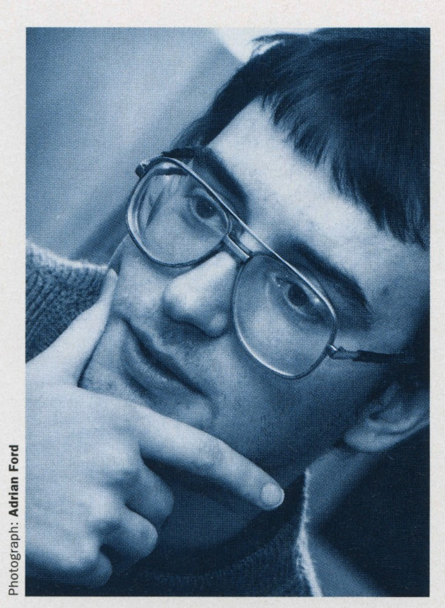
Mark We dropped them 'cos it's too slow. Sprites are a lot faster and they look prettier, and more impressive.

Ian: Is it easier to do?

Mark Not really. Sprites are just a screen routine, and polygons, well I could have just taken the code out of the Amiga version.

Ian: Are the objects rendered and then turned into sprites?

Jason Yep. That's what we do. We choose



Photograph: Adrian Ford

Mark Avory: 'That's another thing about *Thunderhawk*, there's just one programmer'

a texture, wrap it on the object and render it from all angles eight times, and that's your sprite. Then Mark's 3D system chooses which angle is best for where you are in the 3D world and just displays it.

Mark The idea was to get an arcade type look, like a typical Sega arcade machine. They always use sprites. Also Sega wanted to use the product to sell the Mega CD, so it had to push the machine to its limit. And polygons just doesn't use the hardware at all. So the idea wasn't to just do a 'cart on a disc'. We wanted to do something which could only be done on the Mega CD.

Ian: How much support do Sega give their developers?

Richard Barclay I would say Core Design work closer with Sega than anybody else in this country. When you think that *Thunderhawk* is the sixth or seventh Mega CD product that we've produced in-house, nobody else has that capability.

Ian: I suppose it's good to be in tight with the designer of your machine if you want to push out the boundaries?

Mark Yes, they give you the full specification of the machine, and you can see what the hardware can do.

Richard Core Design is about producing software, without sounding corny, that's right on the edge. (Groan) And you can quote me on that. It's going to take a couple of years before they've got the in-house capability to produce something like *Thunderhawk*, and as Mark's already said that's already out of date compared to some products we've got lined up.

Ian: As programmers, is the Mega CD really as awful as it appears?

Mark It isn't awful, it's a very nice machine. It's got two 68000s. You don't run out of cartridge space. Having a CD drive on it makes a huge difference, because you can do a lot more with it, so you can run animation etc. And you've got two processors, the Mega Drive one runs at 7·16MHz, the CD's one is running at 12·5MHz, so there's quite a bit of extra processing power. AND they can run in parallel. And there's an extra graphics chip, also running in parallel. There *are* some dodgy bits. It is an add on to a Mega Drive, so you've got restriction on the colours…

Ian: So the restrictions are far more to do with it being a Mega Drive than with it being a Mega CD?

Mark Right. It's just that nobody's got to grips with it yet. They just say 'Oh, we'll pull these graphics off CD, put a bit of FMV there… but where's the game?

Ian: People were probably impressed by games like that at first, but not now.

Mark That's the other thing about *Thunderhawk*, there's just one programmer, not a team.

Ian: Just having one programmer means you have a clear idea of how it all works?

Mark Yes, you don't read through the source to a bit of code and think 'What the hell's that?' There are drawbacks though, if there are bugs in it and there's two of you you can blame it on the other person!

Ian: It also means you can work quicker?

Jason You don't have to explain to other people what you're doing all the time, you can start at the beginning and zip through.



Photograph: Adrian Ford

Martin Iveson, Core's very own in-house musician, surrounded by expensive kit

Richard Mark and Jason work really well together. They did this project in six months, where other teams might have taken two years to get the same result.

Ian: Which programming team do you most envy and why?

Martin Iveson None really.

Jason I don't. (Laugh) No, I think we all admire a lot of American stuff on the PC.

Mark But they take years over their games. Given that time I could do just as well. First thing we do is get the back page of the manual out and see how many people worked on it. You get a flight sim and you see this programmer did the 3D objects, this programmer did the maps, this programmer did the logic, this guy did the front end, etc, etc, and I think bloody hell! They look nice, but unless they're running on 486 DX2s they're crap. Jerking around all over the place. But if I had to say there was an inspiration for *Thunderhawk* I'd say it was *Strike Commander*. I saw that on a PC and I thought 'Hey I can do that!' Originally

Continued next page



Photograph: Adrian Ford

'So just how well do you guys get on with Sega, then?' A nonplussed Ian Gray – Edge's interviewer for the day – puts a real toughie to Core's marketing boss, Richard Barclay

it wasn't going to be a polygon game, but once I'd worked out you could do it that way, that was it.

Ian: Do you tend to get inspiration from different titles or is it all in-house? Do you see something and think we could do that better?

Mark I think it's something that everybody does. You have to look at what's out there, now and again you see something and think 'that's clever'. Or another programming team might come up with an idea they haven't used very well and you might think, 'if I do THAT with it, it'll be great.' Rather than take somebody's game idea, you take an element and improve on it. Some people have great ideas and they just balls it up.

Ian: Which machine would you wait with baited breath for and why?

Mark The 32bit Sega, because I've seen the spec. (Laugh)

Ian: What are you looking forward to about that?

Mark It'll beat 3DO. Definitely destroy the CD^{32}. There's nothing that can touch it.

Ian: There's a price comparison too, the 3DO's an expensive piece of kit… CD-i's expensive…

Mark I think the Sega machine will be about £300 or £350… anything else just won't be worth it.

Ian: There's usually a settling down period when people start off doing wazzy games with no gameplay, then it settles down when people learn to use the machine…

Mark Yeah, but we want to do proper games on it to start with.

Ian: Your association with Sega will help with that of course. So you've got your



Photograph: Adrian Ford

Richard Barclay: 'No, I don't think £50 is too much for *Thunderhawk*…'



Photograph: Adrian Ford

Ian Gray: 'So, if you were a household appliance, what would you be?'…

first two or three titles on the new machine planned then?

Core team (Conspicuous silence)

Ian: Hmm, okay then. Next question, do you see any limitations in producing software on CD?

Jason Besides time…

Mark And space…

Martin Just CD space.

Ian: But higher density CDs will solve a lot of those problems. You can do FMV at the moment but if it takes you two disks to do a movie then why bother, just use VHS…

Mark You've got a 74 minute limit at the moment.

Jason And music takes up most of that.

Mark They'll definitely get faster, up to 600K per second, and that's up to hard disk speed. The Mega CD's still pretty slow in those terms.

Ian: What's your opinion on FMV?

Mark The only thing that bothers me is if they do put movies on CD, how much are they going to charge? Audio CDs are expensive, so how much more for Video CD? And as for games that use FMV carts… uh oh. Like *Silpheed*. Lovely backgrounds, but where's the game?

Jason Silpheed's just a nine minute intro but there's no game at the end of it.

Mark I think when new machines come out they'll have more powerful graphics, so they won't rely on intros for good graphics.

Jason With graphics intros of the kind that some people do, they're making a statement, 'This is what we can do'. But none of it ends up in the game.

Richard And these games cost money. I buy a bunch of CDs and that costs me £50, and I think I've spent a lot. *Street Fighter II Turbo* costs £60. That said I don't think £49.99 for *Thunderhawk* is too much, considering how much is in there.

Ian: Will you be using the Sega's mode 7 ability in the production of your next title?

Mark Yes, we are already. In both of them. I've used a lot of the code from *Thunderhawk* to get those games going. The Mode 7-type technique is very useful, I'm surprised nobody else is using it.

Ian: Looking ahead into the future, what do you think will be the most fundamental change to games playing?

Jason CDs, when they stop doing FMV.

Mark I think the next breed of machines will be graphically more powerful, they'll just use the CD drive to play music and pull data off, but they won't be using huge animations or flashy backdrops with a crappy little sprite… You see that? That's your sprite that is. Yeah, as a programming technique, FMV is a blind alley. Just a playback routine and that's all the programming done. A quick way of knocking out games, but with no gameplay.

Ian: Last question… If you were a household appliance, what would you be?

Mark Er…

Jason Er…

Martin Er…

Ian: Blimey, and all quite amusing up to this point, eh?

Richard How about a fridge?

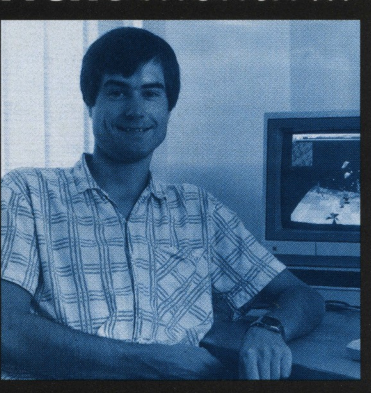
Mark Oh yeah, a fridge, very cool.

Jason A videogame.

Mark A faulty alarm system.

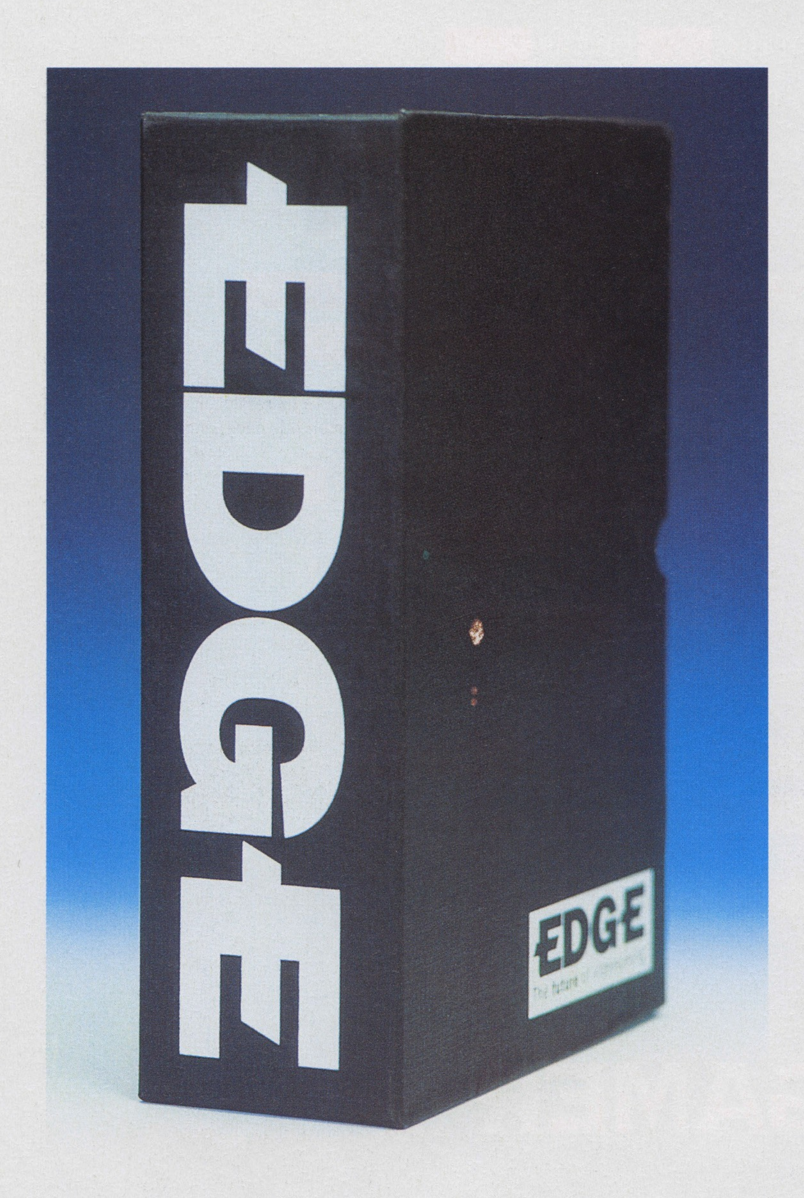
Ian: Er, well… thanks guys.

Next month…



Next time **Edge** and another reader will be interviewing **David Braben**, the leading edge programmer behind *Elite*, *Virus* and *Elite II*. Send in one question to **Edge**, at 30 Monmouth St, Bath, BA1 2BW. Ask the best question, and you could do interview…

Do you **want** to see **issue 4?**



Edge four goes onsale Thursday 25th November. But don't rely on picking up a copy – Edge sells out fast. Instead, fill in the reservation coupon below and hand it (or a suitable copy thereof) to your newsagent, who will then keep an issue of **Edge** for you each month.

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viewpoint

What's your **opinion**? **Write** and **tell** us: **Edge** letters, 30 Monmouth Street, Bath, Avon, BA1 2BW





Atari's Jaguar – is it really the best upandcoming console? And is Edge being respectful enough to it? (see question from Glenn Williams)

Congratulations on **Edge** two. I was particularly pleased to see some support for Atari's Jaguar, it really is the best upandcoming console and its success could depend on people like you. We all know Atari have had their problems but they really do deserve more respect then they get from most mags.

One thing I would like to talk about is the lack of gameplay in an increasing number of new games. You only have to play some of the games written in the early 80s (many of them written in 16K and under) to see that advances in hardware are not bringing advances in gameplay.

The reason for this shortfall is due, I think, to the fact that our industry is being taken over. Corporate suits have moved in and pushed the rest of us to one side. Okay, they've injected some money (mostly spent on PR and marketing, not development) and increased the industry's visibility to the public, but they don't care about the product. This industry was started by people who loved videogames. Too many of the people with the power only really love profits not the products. There are some exceptions, but not enough. I for one don't want to see the games industry end up in the same mess as the audio market. One last thing to think about, why do programmers and designers get paid less than PR and marketing people? Are they less important?

Glenn Williams, Williams Brothers Development, Brierley Hill, West Midlands

Why do Atari deserve more respect? Respect is earned, not apportioned on a time basis; and over the last few years Atari have done little to raise people's opinion of them. They've practically abandoned the ST, and the Lynx and Falcon caused only the smallest of ripples. While the Jaguar may be a fine machine, it'll take more than tech specs and a nice logo to reaffirm Atari's good name.

There are no signs to suggest that today's games aren't as playable as those written years ago: you just don't remember the dross, and there was an awful lot of dross on the Spectrum and C64!

And don't worry about people in marketing: if they do their job properly your royalties will be higher.

In your first issue you printed a small article about FMV (full-motion video) on the Philips CD-i player and you said that from what you had seen VHS has nothing to worry about.

I presume by this statement you meant that FMV was not as good quality as VHS: well that's where you're wrong. From what I saw at the Live '93 show in London, VHS is well and truly knackered. The quality of the picture is superb, far better than VHS, and the sound on the bitstream player was incredible. You could jump to any part of the film instantly without having to forward or rewind. The slow motion was pixel perfect and so was the pause. On music videos you could pause, shrink, move the screen about or practically do anything you want with it and the music would still keep playing due to the sound being taken from the CD on a different channel to the video.

When more people see just how good FMV is, VHS will definitely be no more.

D J Reed, Dewsbury, W Yorkshire

As you probably saw in **Edge** two, we did in fact retract that statement which we made in our first issue. Early demos of Philips' FMV were extremely dodgy, so when we saw the increase in quality it was a very pleasant surprise. However, there are still some major problems with FMV – or rather, Digital Video, as Philips prefers to call it. The quality is still debatable: it very much depends on the quality of the original film and the encoding. Most films will come out on two or even three compact discs, and it will be several more years before recordable CDs mean that you can digitally record TV programmes as you are used to doing with VHS.

The ability to play around with the image is also gimmicky at best: when was the last time you used slow motion, frame advance, freeze frame or picture-in-picture (which are all high quality on today's videos)?

VHS videos are installed in too many UK homes for Digital Video to just storm in and take over. And look how poorly LaserDisc has done over the last ten years – and that gives images of much higher quality than VHS *or* DV.

I was on my way to the local computer shop to buy an Amiga CD^{32} when I saw your second edition, and knowing you were going to do a feature on CD-ROM, I immediately bought it.

After reading the ten or so pages on 'CD-ROM: The Truth', all my enthusiasm to buy the dream machine died. I found your article totally soured what I thought was a breakthrough. I know you did not aim your article at the CD^{32}, and it was not just your own opinion but people's in the industry as well, but it did seem to dwell on the negative side of things and not give many positive points.

I agree that people expected too much if they thought they would be able to play a part in their favourite film and alter the outcome depending on what path they took. I in no way expected this but I do think it will improve games dramatically when the programmers realise the limitations of the current machines and the expectations of today's gamesplayers.

I am not totally against your article, as it should wake up some programmers and push them in the right direction, but hopefully in future your articles will be more balanced and tell the whole truth.

I did not buy the CD^{32} ; I'll wait until after Christmas and see how its doing and what software gets launched. But I *will* be buying **Edge** 3.

Jason Black, Wymondham, Norfolk

Certainly, if our feature made you pause before buying a CD^{32} then that's no bad thing. Not because the CD^{32} isn't worth buying, but because videogamers are about to enter another format wars, bigger and more confusing than Sega vs Nintendo. CD^{32}, Jaguar, 3DO, and Sega's 32bit machine will all be vying for your attention over the next year or so.

With these high-end, CD-based machines all in their infancy, it's definitely worth waiting to see who takes control of the market, and see how the software shapes up.



The Amiga CD^{32} – undoubtedly hi-tech kit, but is the CD format just too slow to provide decent gameplay? (see question from Jason Black)

Firstly I would like to say that your magazine is excellent, and the idea of telling people about all the different hardware that's around is much more interesting than just reviewing games.

Anyway I have a couple of questions to put forward. I am hoping to soon own a fabulous Atari Jaguar and would like to know what if any arcade classics will be converted – like *Mortal Kombat*. Also will a new Jaguar joypad be introduced because the one Atari have designed is totally crap!

Finally I hear that movies will come on two CDs for systems like the 3DO. This means having to swap CDs half way through the movie, so why not redesign systems and CDs for double-sided compatibility. What do you think?

Adam Lowery, Selby, North Yorkshire

Having handled the Jaguar's joypads **Edge** can only concur with your evaluation of their worth: they are very poor quality indeed. However, it's extremely doubtful that Atari will introduce another joypad for several months, if at all. Your best bet is to wait until a third party manufacturer provides a decent replacement.

There are still problems with double sided CDs. They're more difficult to produce, and to play both sides you need a switching mechanism that transports the laser from one side to the other, increasing the size and cost of the player. A simpler and more immediate solution is a multi-disc player like Sony's audio CD unit. You can shove five CDs into its carousel, providing up to six hours' continuous play.

'Needs more balance between the two consoles, the PC and the Amiga. Right now there is too much Sega and Nintendo.'

Vvek Bhalla, Wembley

'I'd be interested to know the definition of 'game' you use, and expect to use in the future.'

K Parsonage, Warrington

'At last, a worthy successor to ACE magazine, treating gamesplayers as human beings rather than snotty kids.'

Daniel Smith, Woolwich

'If Edge can keep on revealing detailed technical info well ahead of its competitors, it has it made.'

W Murray, Bristol

After reading **Edge** two thought I just had to write and say 'About bloody time too!'

Technophiles and adult gamers like myself have been patiently waiting for years for a decent multiformat magazine to hit the shelves.

And yet so far all we've had seems to be a tidal wave of childish, immature drivel. Seemingly written by children for children, some sycophantically preaching the views of certain big manufacturers (mentioning no names) and most, printing pathetically inane letters which serve no purpose but to fill space.

Now that I've got that off my chest I thought I'd air my views on your magazine. In a word I'd say 'brilliant'. The news section, which is one of my favourites, is extremely informative and well laid out, and I especially like the little snippets of news and information dotted here and there.

The numerous special features and interviews also make a welcome departure from the norm, and really do make compulsive reading – something lacking in most mags.

In finishing I'd like to say that, if you can keep this same level of quality in future issues without sinking to the level of your inferiors, then you'll have a subscriber for life in me, and a grateful one at that.

Steve Mann, Frome, Somerset

Continued next page

viewpoint

Well, praise indeed. To be fair to other mags, they do serve their intended audience, but that's why **Edge** was launched – to serve an older, more informed audience which we knew to exist.

And much as most readers love what **Edge** does, let the mag know what you do or don't want to see; if there are specific features you want to read, write in and say so.

I have just been lucky enough to purchase **Edge** two and have found it a real change from the usual crap that constitutes game mags. As a Mac games programmer wanting to break into the console market, it gives me a real insight into the overall world of videogames. What other magazine gives full development credits to the games it previews?

My only real complaint is that the magazine completely ignores the Mac. If you were only handling console games then this might be understandable, however you do cover the PC. In the States, Macs are quite legitimate games machines and have been for years.

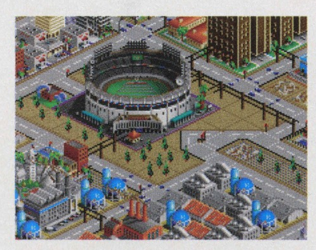
Even in the UK, surely there are more people playing games on Macs then there are on the FM Towns Marty?

I feel that if you are going to position yourself as an unbiased, professional magazine covering all important formats, then you cannot ignore the only other widespread desktop computer platform.

And of course, if you want a Mac game to review to redress this despicable imbalance, then *Crystal Crazy*, the sequel to the all-time classic *Crystal Quest*, has just been released…

Patrick Buckland,
(author of *Crystal Quest*)
Newport, Isle of Wight

At least there's one reader who'll be pleased to see our preview of *Sim City 2000* this issue. And you can be sure that we'll be looking at more Mac games in future issues.



***Sim City 2000* – Edge's first big Mac preview.** **Turn to page 32** **to find out what we thought…**

Edge is slick, very slick, and I'm not just talking about the paper here. For the first time, a computer magazine that seems to assume its readers may well be a little more than adolescent males. For the record, I'm 28, male, married, and an out-and-out technophile. This stuff is like porn to me, only more so. Naked women? Big deal. The hardware of science fiction, here, now and available – that's sexy.

Please don't get carried away with the techie side of things, though. You sort of mentioned it yourselves, in the excellent article about CD-ROM – great graphics, what about the gameplay? I don't care about how many polygons a second the thing uses if it's fun to play.

And please don't make the mistake of thinking that just because a machine is new, fast and powerful, that it's automatically good.

Along those lines, reading about fast, powerful, cheap, state-of-the-art machines and glorious software for them, only to discover that it has never been available outside Japan, is a bit of a kick in the teeth. Yes *Microcosm* is very pretty, but wouldn't it have been better to wait until a reader actually stood a chance of getting their hands on it before doing a huge article on the damn game?

Any chance of a feature on who owns what? I know Sony own Psygnosis, but who else? Who actually owns Atari or Commodore? How many different companies do Time Warner actually own, and how many of them are competitors?

Derek Richardson,
Edinburgh

Of course Edge is porn: why do you think it's bagged? We practice safe reading.

The idea behind the *Microcosm* feature was to show how the new breed of CD-ROM titles are actually being produced. And since it's now being converted to PC CD-ROM, CD-i, 3DO and Mega CD, it seemed to be fair game. Also, if we don't show you stuff on FM Towns – or Neo Geo and PC Engine for that matter – then who will?

Good feature idea: we'll see what we can do for issue four of **Edge**.



'Everyone who has seen my copy rates Edge ten out of ten. It may be £3 but it's well worth it – excellent presentation and quality pages. Keep it up!'

Roger Isaac,
Balby

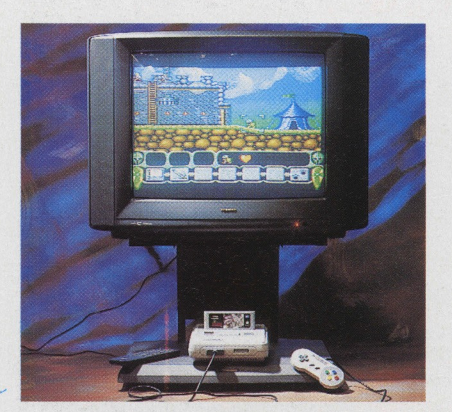
'Please don't be just another game magazine – be a games technology magazine.'

Crosbie Fitch,
Lewes

'You should have at least three pages of tips for all formats.'

Kevin Anderson,
Poole

The Surround Sound Competition



One £800 25inch Toshiba Dolby Surround TV – we're all very sad to see it go, actually…

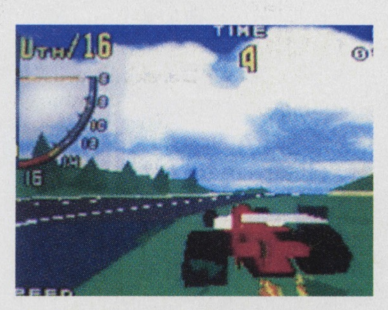
Edge ran a competition in the first issue offering an enormous Toshiba 25inch Surround Sound stereo TV – worth £800 – a SNES, and a copy of the brilliant Dolby Surround game *King Arthur's World* from Jaleco as first prize.

We asked you to name ten games for home consoles that support Dolby Surround, QSound or Roland Sound Scape (RSS), and were also mentioned somewhere in our first issue. Sadly it seems that an awful lot of you forgot that little phrase 'for home consoles'. And there were a couple of sneaky arcade games mentioned as well. Sorry about that, but you can't expect us to make it too easy, can you. Anyway the answers in full were: *Rainbow Islands, Ecco The Dolphin, Gradius II, Super Darius, Super Turrican, King Arthur's World, Ren & Stimpy, Jurassic Park, Terminator CD* and *Xenon II*.

And lastly, the winner is: **Donald Ridley** of Poole, Dorset. One massive Toshiba TV delivery is on the way to you… Better clear a bit of space in your living room – it's a monster. And for the rest of you, better luck next time, eh?



Confused about the technical side of videogaming? Or simply curious about games? For an answer to your queries, drop **Edge** a line...


MD *Virtua Racing* – so just how fast do those polygons shift then? (below)

Q Last month's *Virtua Racing* Prescreen mentioned that the DSP in the Mega Drive game shifts the polygons at about 15 frames per second, ie at half the frame rate of the coin-op. Is this better than the Super FX in *Starfox*?

Richard Philips, Altrincham

A 15 frames per second looks to be the *minimum* speed that MD *Virtua Racing* runs at – much of the action could be as fast as 20fps. What separates it from *Starfox*, though, is the detail and colour in the graphics and the blindingly fast pace of the racing. It's certainly a darn sight more impressive than the early version of Nintendo's *FX Trax* (their next Super FX game) shown at the CES last June. But then that was an early demo, so things are bound to improve. One thing that would make MD *Virtua Racing* a classic game, is if Sega include a linkup cable (like SNK did for the Neo Geo) that could branch two or more Mega Drives together, each playing the game on a separate television. The game's great in one-player mode, but fantastic with more players.

Q I saw in your Prescreen of *Landstalker* for the Mega Drive that you described it as '16meg'. Now to me, a meg is a million bytes (as opposed to a megabyte which is 1,048,576 bytes); I think it came from hard disk people who like round numbers. Other people use 'meg' as short for megabyte. Don't start using it for megabits as well – I've only got a simple brain and these things confuse me. And why are Sega and Nintendo games described in megabits anyway? Are good old fashioned bytes and megabytes not good enough for them?

Anon, Clwyd

A When 8bit Nintendo games started appearing in Japan in 1983, they were often only a single megabit in size (128K). Measured in megabytes, this translates to an eighth of a megabyte – clumsy eh? When games gradually increased in size it was always a jump of a megabit, or two, which was easy to quantify. Most MD and SNES games are now either 4, 8, 12 or 16 megabits in size. Since console owners have got used to this format, translating things into megabytes by dividing by eight (eg *SF II Turbo* at 20 megabits = 2½ megabytes) would have confused things further. Megabytes are more familiar in the computer sector.

Q Do you think that those sensible chaps at Commodore will ever think of introducing an add-on for the Amiga 1200, which will enable its users to play the new Amiga CD32 games?

Dean Pullen, W Sussex


Will the A1200 ever get a CD drive? (see question above)

A Get this. Commodore have already developed the CD-ROM drive for the A1200 but won't be releasing it until after Christmas because they claim the manufacturing cost is currently too high. If they released it now they reckon the price would be in the region of £330 – that's £30 quid more than a CD32. Yes, we can't quite work that one out either. It is coming though, and will appear some time after Christmas.

Q In **Edge** two you claimed that speeding up a UK SNES to 60Hz 'really doesn't make a big difference'. When I bought my UK Mega Drive I was appalled by the slow speed and letter box-style display. So I sold it and bought a Japanese 60Hz Scart machine. The difference in speed and picture quality was immense – almost 20% faster and with a borderless, full screen picture. Is this not the same with an imported or converted 60Hz SNES as opposed to a 50Hz UK PAL machine?

Robin Howe, Macclesfield

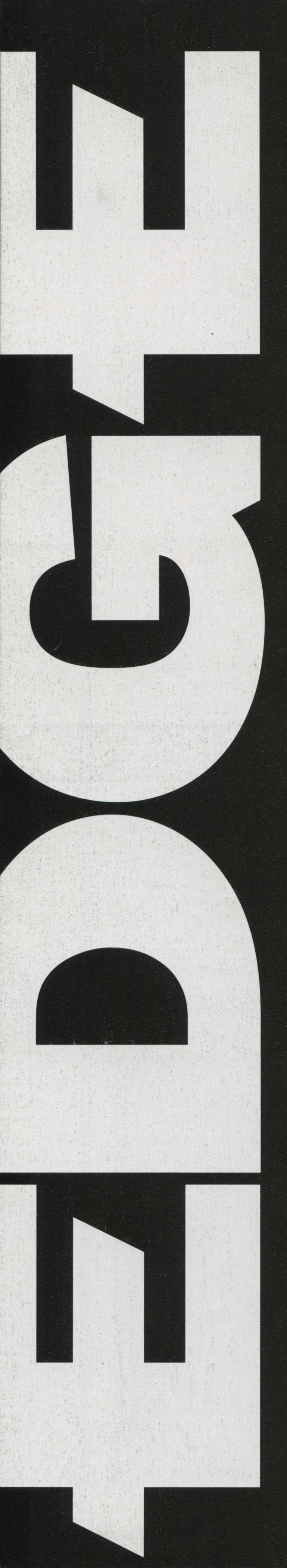
A You're absolutely right about the difference between a 50Hz PAL SNES (UK model) and a 60 Hz Scart SNES (imported) – it's the same as the difference between an imported Mega Drive and the UK Mega Drive. UK consoles suffer from the perennial problem of the 17% speed loss and those ugly screen borders – something which is unavoidable, with so many UK TVs still only supporting a 50Hz display. Getting a UK SNES converted to 60Hz isn't recommended, since a UK machine has a different video processor from the Japanese and US imports. If you want a full screen, full speed system, buy an import – the UK machine is best left with its guarantee intact.

Q and A

Most gamers, at one time or another, have come across a technical problem that they can't solve, or a query with no-one to answer it. This is where Edge comes in...

Simply jot your problem down and send it to: Q&A, Edge, 30 Monmouth Street, Bath, Avon BA1 2BW. Alternatively, fax us on 0225 338236, or e-mail us via future@cix.compulink.co.uk. with a subject line of 'ATTN: Steve Jarratt'.

Edge will do all it can to provide a solution in the next issue of the magazine. Sorry, we can't answer queries on the phone and personal replies are not possible.



Recommended **reading**

In which we preview a few of


Game featured: F1 Challenge

Magazine: **PC Format**

Format: **PC**

Price: **£3.95**

'**Platform games** are few and far between on the PC, but this month one of them manages to score over 80%. **Yo Joe!** is arguably the best (and cheapest) platform game we've seen so far. But this is only one of 22 reviews in the issue. *Privateer*, Origin's follow-up to *Wing Commander*, is another gem you shouldn't miss. With awesome graphics and hundreds of missions, it could be enough to convince you to buy a PC. *Sim Farm* and *Kasparov's Gambit*, the latest in chess games, get the full reviewing treatment. *Street Fighter II*, US Gold's conversion of the classic arcade game also manages to limp into this issue. On this month's high-density Coverdisk, we've got a playable preview of a platform game called *Oscar*, and a demo of *Body Blows*, a beat 'em up that easily beats up *Street Fighter II*. As if that's not enough, we're also running a huge feature on using video with your PC. PC Format is about more than just games, you know.'

Mark Higham, Editor


Pic: Project Reality

Magazine: **Total!**

Format: **All Nintendo**

Price: **£2.50**

'**This month** Total explores the hottest Nintendo story of the decade – **Project Reality**. This new 64bit super-console is a joint development between Silicon Graphics and Nintendo, and looks set to be the standard by which all others are judged. It outperforms 3DO, it dumps on Sega Saturn and it could well be the first domestic VR system. We explore the machine, the money and the possibilities for the future. Is this really the wonder-machine we've all been waiting for? Or is it simply a delaying tactic to take the shine off 3DO? We'll also bring you full reviews of *Zelda* on Game Boy, *Mr Nutz* and *Total Carnage* on Super NES, and *Jurassic Park* on all formats. Best of all, we give you the chance to visit Nintendo in Japan, the trip of a lifetime, all expenses paid. To top it all, we have all the news, reviews, tips and tactics that you've come to expect from Europe's biggest independent Nintendo magazine. See you there.'

Frank O'Connor, Editor


Game featured: Theme Park

Magazine: **PC Gamer**

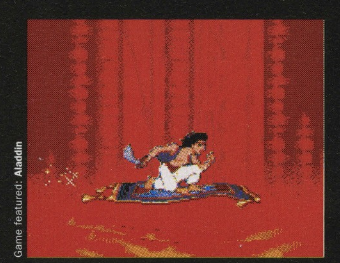
Format: **PC**

Price: **£3.95**

'**This is**, of course, the month the first issue of PC Gamer hits the streets (on November 11th, to be precise). You should have heard a bit about PC Gamer already, but if you haven't, it's a new type of PC magazine – totally dedicated to gaming. It features text that is informative, mature, and yet at the same time somehow funny. It features a stylish, snazzy, sophisticated design, and it features lots of game reviews and previews. Things like Bullfrog's **Theme Park**, Origin's *Ultima VIII*, and lots more. There'll be top-selling author Terry Pratchett talking about the all-new *Discworld* game too. Plus, two high-density disks packed with brilliant game demos. If you've even a passing interesting PC games, you owe it to yourself to sample PC Gamer. I think you'll like it…'

Matt Bielby, Editor

the other Future videogame magazines



Game featured: Aladdin

Magazine: **Mega**

Format: **Mega Drive/CD**

Price: **£2.50**

‘**Issue 14** of Mega (which is, I hasten to add, Britain's best-selling Mega Drive and Mega CD mag) is a bit special and no mistake. For a start it has a very Disney-ish feel to it with the review of **Aladdin**, one of the most beautiful and playable platformers ever. To tie-in with that we interview David Perry, the genius behind programming *Aladdin*, and finally, not entirely removed from the same subject, is a feature investigating the appallingly low quality of film licences, and whether we can expect to see some improvement with the increasingly close working relationship between Hollywood and the games industry. Oh, and of course we have all the usual new, previews, tips and a stunning 21 game reviews. Phwoar! ’

Andy Dyer, Editor

Game featured: Robocop Vs Terminator

Magazine: **Sega Power**

Format: **All Sega**

Price: **£2.50**

‘**The December** issue of Sega Power promises to be most excellent. Why? We blow the gaff on Virgin's blockbuster *Demolition Man*, for starters. Then, for an encore we're giving away a 100 page book and a year planner with each issue. Oh, then we've got 148 pages to shout about, with more Sega reviews than you're ever likely to see. **RoboCop Vs Terminator** leads the way, closely followed by *Sonic Spinball*, *Sonic Chaos*, *Jungle Book*, *John Madden '94*, *James Pond 3*, *Sensible Soccer*, *Cool Spot* and *Desert Strike* on the Master System, and… you get the picture? ’

Mark Ramshaw, Editor



Game featured: Lethal Enforcers

Magazine: **GamesMaster**

Format: **Multiformat**

Price: **£1.95**

‘**Here's blood** in your eye! The spectacularly violent (in a cartoony kind of way) November issue of GamesMaster is, to coin a conspicuously unpopular phrase, ‘bullets’. Armour-piercing, tracer, hollow-point, soft-point… they're all here somewhere, in a big boy's bumper book of ballistics-oriented games. Top of the heap is **Lethal Enforcers** (Mega CD). Also shoehorned into this issue are reviews of *Total Carnage* (SNES), *Uridium 2* (Amiga), *Gauntlet 4* (Mega Drive), *Turrican 3* (Amiga), and *Streetfighter II Special Champion Edition* (Mega Drive). You get free stickers, all the news on the GamesMaster TV show (and an interview with new frontman Dexter Fletcher), and… oh, and incidentally, it's all delivered in such an informed, teeth-grindingly funny style, you'll need to be beaten about the face and neck to be convinced that it's only £1.95! Thursday, October 21st. Do the right thing… ’

Andy Lowe, Editor



Game featured: Humans

Magazine: **Game Zone**

Format: **All Nintendo**

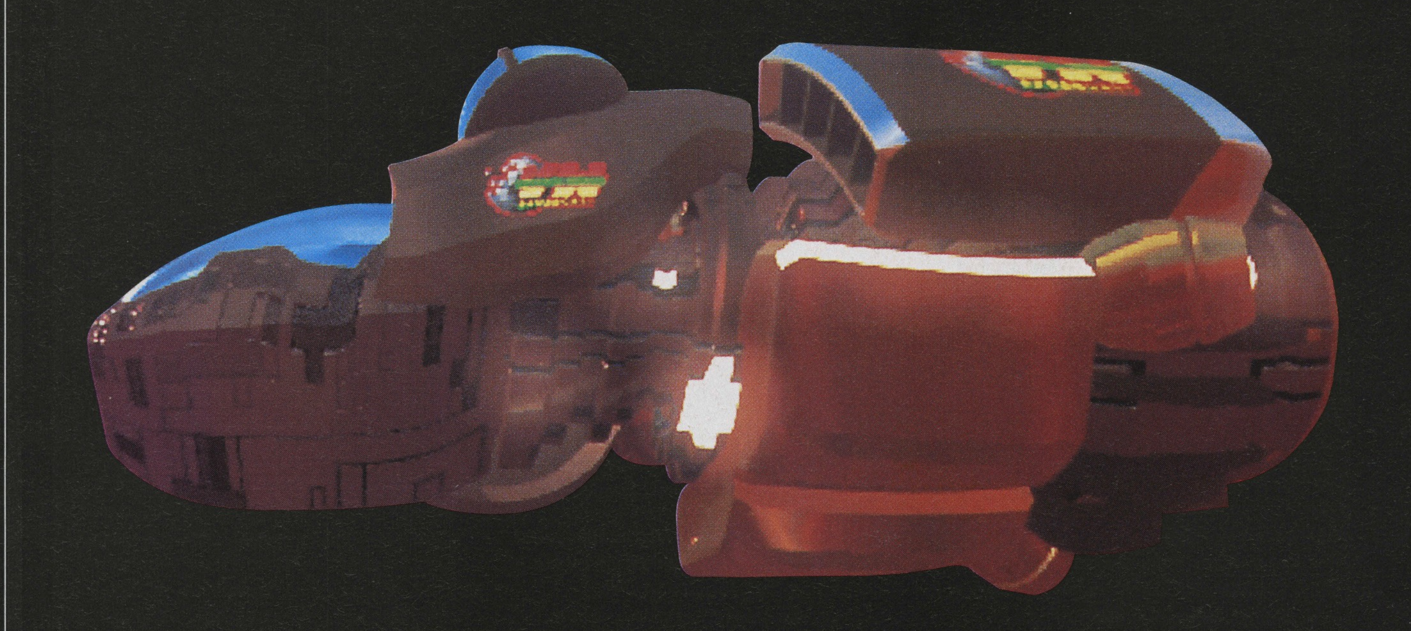
Price: **£2.50**

‘**2019.** Neo-Tokyo is about to explode – and Game Zone is there. The Manga epic that wowed the world is being prepared for full-on Nintendo treatment. And GZ has the full story of how a cyber-classic is converted to console. Also deep previews of *Ren & Stimpy* (Game Boy), **Humans** (SNES), *Spiderman And The X-Men* (Game Boy), *Mega-lo-Mania* (SNES) and *Run Sabre* (SNES). And a reviews section that boasts the very best and worst that Nintendo gaming has to offer, games like: *Sensible Soccer* (Super NES), *The Fidgetts* (Game Boy) *Aero The Acrobat* (SNES), *Legends Of The Ring* (SNES), *Total Carnage* (Game Boy and SNES), *B52* (NES), and *Mr Nutz* (SNES). There's a cheat-packed tips section that boasts solutions to *Jurassic Park* on all formats, *Zelda* on the Game Boy, and the start of a brilliant new section that brings help direct from Nintendo's own Hotline games experts. Get into the Game Zone thing – you know you want to. ’

Trenton Webb, Editor

over the edge

Next month



EDGE 4

Thursday 25th November

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